CRPL-F 94

IONOSPHERIC DATA

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JUNE 1952

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON, D. C.

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, L, M, N, Q, S, or T are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic. This practice represents a change from that listed in issues previous to CRPL-F78.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number							
	1952	1951	1950	1949	1948	1947	1946	1945
December		53	86	108	114	126	85	38
November		52	87	112	115	124	83	36
October		52	90	114	116	119	81	23
September		54	91	115	117	121	79	22
August		57	96	111	123	122	77	20
July		60	101	108	125	116	73	
June		63	103	108	129	112	67	
May	52	68	102	108	130	109	67	
April	52	74	101	109	133	107	62	
March	52	78	103	111	133	105	51	
February	51	82	103	113	133	90	46	
January	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 56 and figures 1 to 112 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
Buenos Aires, Argentina

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
Brisbane, Australia
Canberra, Australia
Hobart, Tasmania

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
Watheroo, Western Australia

University of Graz:
    Graz, Austria

British Department of Scientific and Industrial Research, Radio Research Board:
    Falkland Is.
    Ibadan, Nigeria (University College of Nigeria)
    Inverness, Scotland
    Singapore, British Malaya
    Slough, England

Defence Research Board, Canada:
    Baker Lake, Canada
    Churchill, Canada
    Ottawa, Canada
    Prince Rupert, Canada
    St. John's, Newfoundland
    Winnipeg, Canada

Radio Wave Research Laboratories, National Taiman University, Taipeh, Formosa, China:
    Formosa, China

Icelandic Post and Telegraph Administration:
    Reykjavik, Iceland

All India Radio (Government of India), New Delhi, India:
    Bombay, India
    Delhi, India
    Madras, India
    Tiruchy (Tiruchirapalli), India

Radio Regulatory Commission, Tokyo, Japan:
    Akita, Japan
    Tokyo (Kokubunji), Japan
    Wakkanai, Japan
    Yamagawa, Japan

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:
    Oslo, Norway
    Tromso, Norway

South African Council for Scientific and Industrial Research:
    Capetown, Union of South Africa
    Johannesburg, Union of South Africa

Research Laboratory of Electronics, Chalmers University of Technology, Gothenburg, Sweden:
    Kiruna, Sweden

Research Institute of National Defence, Stockholm, Sweden:
    Upsala, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:
    Schwarzenburg, Switzerland

United States Air Force:
    Cocoa, Florida

United States Army Signal Corps:
    Adak, Alaska
    Okinawa I.
    White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
    Anchorage, Alaska
    Batavia, Ohio (mobile unit)
    Baton Rouge, Louisiana (Louisiana State University)
    Fairbanks, Alaska
    Huancayo, Peru (Instituto Geofisico de Huancayo)
    Maui, Hawaii
    Panama Canal Zone
    Point Barrow, Alaska
    Puerto Rico, W. I.
    San Francisco, California (Stanford University)
    Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 57 to 68 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 69 presents ionosphere character figures for Washington, D. C., during May 1952 , as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

OBSERVATIONS OF SOLAR FLARES

Table 70 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U. S. Naval, Wendelstein, Kanzel and High Altitude at Sacramento Peak, New Mexico. The remainder report to Meudon (Paris), and the data are taken from the Paris-URSIgram broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Sacramento Peak, New Mexico, communicated by the High Altitude Observatory at Boulder, Colorado, are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

RADIO PROPAGATION QUALITY FIGURES

The radio propagation quality figures (North Atlantic area) for January through March 1952 have been recalculated and appear in Tables 71a, 72a, and 73a, respectively. Table 74a gives the same information for April 1952. These data supersede Table 86 in F91 (January data), Table 70 in F92 (February data), and Table 80 in F93 (March data).

In addition to the radio propagation quality figures for 00 to 12 and 12 to 24 hours UT (Universal Time or GCT) for each day, these tables in this report list some of the CRPL forecasts and warnings for North Atlantic paths for the same periods of time: (1) radio disturbance warnings broadcast on WWV, (2) short term forecasts, issued every six hours for a 12-hour period, (3) advance forecasts (semiweekly CRPL-J reports) issued from one to 25 days in advance. The tables also give half-day averages of geomagnetic K-indices measured by the Cheltenham Magnetic Observatory of the U.S. Coast and Geodetic Survey. Part b of the tables illustrates the comparison between the short term forecasts and the quality figures. The forecasts are plotted approximately at the time of issue, and they are intended to represent conditions in the 12-hour period following. The figures also illustrate the overall outcome of the advance forecasts, issued one to three or four days ahead, and in comparison is shown the result

The radio propagation quality figures are prepared from radio traffic data reported to CRPL by a method similar to that described in IRPL-R31 "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," now out of print. Beginning with the recalculated figures for January 1952, only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality. Observations of selected ionospheric characteristics, even though strongly correlated with radio transmission quality, and traffic reports for paths such as New York-Stockholm or New York-Tangier, previously included in the quality-figure determination with low weight, have been left out of the present calculations inasmuch as a sufficient number of homogeneous reports are now available.

The original reports are submitted on various scales and for various time intervals. The observations for each Greenwich half day are averaged on the quality scale of the original reports. These half-day indices are then adjusted to the 1 to 9 quality figure scale. The conversion table was prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution determined from analysis of the reports made on the 1 to 9 quality figure scale. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal of the departure from linearity. The half-daily radio propagation quality figures, beginning January 1948, is the weighted mean of the reports received for that period.

These quality figures are, in effect, a consensus of reported radio propagation conditions in the North Atlantic area. The reasons for low quality are not necessarily known and may not be ionospheric storminess alone. For instance, low quality may result from improper frequency usage for the path and time of day. Although, wherever it is reported, frequency usage is included in the rating of reports, it must often be an assumption that the reports refer to optimum working frequencies. It is more difficult to eliminate from the indices conditions of low quality because of multipath, interference, etc. These considerations should be taken into account in interpreting research correlations between the Q-figures and solar, auroral, geomagnetic or similar indices.

In the comparison of forecasts and quality figures the following conventions apply: Radio disturbance warnings -- direct comparison by half-days where N is scored G when $Q \geqslant 5$ and M when $Q \leqslant 4$; U is scored O when $Q \geqslant 6$, H when $Q = 5$ or 4, and (M) when $Q \leqslant 3$; W is scored O when $Q \geqslant 5$ and H when $Q \leqslant 4$. If a warning is broadcast for a quarter-day, the more disturbed grade is used in the comparison. Short term forecasts -- direct comparison by half days, both forecast and quality figure being on the Q-scale. Only the forecasts for 00-12 and 12-24 hours are evaluated; the results for the intervening forecasts should be similar. Advance forecasts -- the whole-day forecast, on the Q scale, is compared with a whole-day index derived from the two half-daily quality figures, when different, as follows: if either half-day Q-figure is 4 or less, the whole-day index is the lower of the two; if both half-day Q-figures are 6 or more the whole-day index is the higher of the two; if the 00-12 Q-figure is 5 and the other is greater than 5, the whole-day index is the higher; if the 00-12 Q-figure is greater than 5 and the other is 5, the whole-day index is 5.

Note. The North Pacific quality figures which were published through October 1951 have been temporarily discontinued. Since the establishment of the North Pacific Radio Warning Service at Anchorage, Alaska, a larger number of reports are being received than were previously available in Washington. The preparation of the quality figures will be resumed when sufficient data have been accumulated for determination of conversion tables for these new reports.

OBSERVATIONS OF THE SOLAR CORONA

Tables 75 through 77 give the observations of the solar corona during May 1952 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 78 through 80 list the coronal observations obtained at Sacramento Peak, New Mexico, during May 1952, derived by the High Altitude Observatory from spectrograms taken by Harvard University as a part of its performance of an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 75 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 76 gives similarly the intensities of the first red (6374A) coronal line; and table 77, the intensities of the second red (6702A) coronal line; all observed at Climax in May 1952.

Table 78 gives the intensities of the green (5303A) coronal line; table 79, the intensities of the first red (6374A) coronal line; and table 80, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in May 1952.

The following symbols are used in tables 75 through 80: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 81 lists the daily provisional Zürich relative sunspot number, R_Z, as communicated by the Swiss Federal Observatory. Table 82 continues the new series of American relative sunspot numbers, R_A'. Beginning with 1951, the observations collected by the Solar Division, AAVSO, have been reduced according to a new procedure, such that only high quality observations of experienced observers are combined into R_A'. Observatory coefficients for each of the 28 selected observers were recomputed on data for 1948-1950, years when there was a wide range of solar activity. Otherwise, the procedure is that outlined in Publication of the Astronomical Society of the Pacific, 61, 13, 1949. The scale of the American numbers in 1951 differs from that of the reports for earlier years because of these changes, and the new series is designated R_A' rather than R_A. *The American relative sunspot numbers appear monthly in these pages, as communicated by the Solar Division.*

INDICES OF GEOMAGNETIC ACTIVITY

Table 83 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity. The details of the currently used method follow. For each day of a month, its geomagnetic activity is assigned by weighting equally the following four criteria: (1) C; (2) the sum of the eight Kp's; (3) the greatest Kp; and (4) the sums of the squares of the eight Kp's.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 (very quiet) to 9 (extremely disturbed), expressed in thirds of a unit, e.g., 5- is 4 2/3, 5o is 5 0/3, and 5+ is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Tables of Kp for 1945-48 are in Bulletin 12b; for 1940-44 and 1949, in these CRPL-F reports, F65-67; for 1950, monthly in F68 and following issues. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles C and selected days. The Chairman of the Committee computes the planetary index. At the meeting of ATME held in Brussels in August 1951, it was decided that the computation of Kw would be discontinued after the month of December 1951 since Kp is available from January 1, 1940. Kw, therefore, no longer appears in these reports.

SUDDEN IONOSPHERE DISTURBANCES

Table 84 shows that no sudden ionosphere disturbances were observed during the month of May 1952. Tables 85 and 86 list respectively the sudden ionosphere disturbances observed at Lindau, Harz, Germany, April 1952 and in England, April 1952.

Table 1

Washington, D. C. (38.7°N, 77.1°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2						2.9
01	280	3.0						2.9
02	270	2.5						2.9
03	290	2.2						3.0
04	300	2.0					1.1	2.9
05	270	2.8			120	1.5	1.3	3.1
06	310	3.7	230	3.3	110	2.0	2.6	3.1
07	400	4.1	220	3.6	110	2.4		2.8
08	440	4.4	210	3.9	100	2.7	4.0	2.7
09	450	4.5	200	4.0	100	3.0	3.1	2.7
10	500	4.6	200	4.2	100	3.1	4.0	2.5
11	470	4.7	190	4.2	100	3.2	4.0	2.7
12	460	4.8	200	4.3	100	3.3	4.1	2.7
13	440	5.0	200	4.3	100	3.2	4.1	2.7
14	400	5.0	210	4.2	100	3.2		2.9
15	370	5.1	210	4.1	100	3.1		2.9
16	350	5.3	220	4.0	110	2.8		3.0
17	330	5.4	220	3.7	110	2.5		3.0
18	290	5.8	250	3.3	110	2.1		3.1
19	250	5.7	240	---	120	1.6	3.1	3.1
20	250	5.3					1.3	3.1
21	260	4.6						3.0
22	270	4.0						3.0
23	270	3.5						2.9

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	(3.1)					4.6	(3.0)
01	(240)	3.1					5.0	(3.0)
02	(270)	(3.0)					6.0	---
03	280	(2.9)					4.0	2.9
04	280	(2.8)			---	---	3.0	(3.0)
05	(260)	3.2			100	(1.8)	3.8	(3.0)
06	(260)	(3.2)			100	(2.0)	3.8	(3.3)
07	(360)	3.4	---	---	---	---	5.2	---
08	---	---	---	---	---	---	4.7	---
09	(470)	(4.0)	210	3.6	100	2.6	4.6	(2.7)
10	(550)	(3.9)	230	3.7	100	2.8	3.8	(2.5)
11	G	(3.8)	200	3.7	100	2.8		---
12	(520)	(3.9)	220	3.7	100	2.8		2.6
13	470	4.1	230	3.8	100	2.9		2.7
14	440	4.2	220	3.7	100	2.8		2.7
15	440	4.3	220	3.7	100	2.7		2.7
16	400	4.2	220	3.6	100	2.7		2.9
17	350	4.1	240	3.5	100	(2.5)		3.0
18	(300)	3.9	240	(3.3)	100	(2.3)		3.0
19	280	3.8	220	---	100	2.0	3.4	3.2
20	250	(3.6)	---	---	---	---	6.8	(3.2)
21	(270)	(3.3)					5.7	(3.1)
22	(260)	3.6					7.5	(2.9)
23	(260)	(3.2)					6.9	---

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 3

Tromso, Norway (69.7°N, 19.0°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(385)	(3.2)					3.6	(2.8)
01	(325)	(2.8)			---	---	3.6	(2.8)
02	---	(2.8)			---	---	3.6	(2.8)
03	---	(3.0)	---	---	---	(1.3)	4.4	(2.8)
04	---	(3.4)	---	---	---	---	3.2	(3.0)
05	---	(3.7)	250	---	110	1.8	2.5	(2.8)
06	---	(4.0)	245	---	105	2.1		(2.8)
07	(310)	(4.3)	240	(3.6)	110	2.3		(3.0)
08	(385)	(4.6)	235	3.8	110	2.5		(2.9)
09	(350)	5.0	230	3.9	110	2.6	(2.8)	3.0
10	350	5.0	215	4.0	105	2.7		3.0
11	340	5.0	225	4.0	110	2.8		3.0
12	360	5.1	215	4.0	110	2.8		2.9
13	330	4.8	225	4.0	110	2.8		3.0
14	360	4.8	230	3.9	110	2.7		2.9
15	340	4.4	240	3.8	110	2.6	2.8	3.0
16	310	4.7	240	(3.6)	110	2.6	2.0	3.0
17	290	4.8	245	---	110	2.2	3.0	3.1
18	290	4.3	255	---	110	2.0	3.5	3.1
19	310	4.2	---	---	---	---	3.8	3.1
20	310	4.0					4.0	3.0
21	(305)	3.6					4.2	(3.0)
22	---	(3.7)					3.7	---
23	---	---					3.7	---

Time: 15.0°E.
Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 4

Anchorage, Alaska (61.2°N, 149.9°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.6					1.6	2.9
01	350	2.6					2.0	3.0
02	350	2.4					2.5	2.8
03	350	2.4	---	---			2.0	2.8
04	320	2.5	---	---	---	---		3.0
05	280	3.0	250	2.8	110	1.8		2.9
06	540	3.4	240	3.0	110	2.2		2.5
07	520	3.8	220	3.3	100	2.4		2.5
08	600	(<3.8G)	220	3.5	100	2.6		2.4
09	G	(<3.8G)	210	3.7	100	2.9		G
10	0	(<4.0G)	200	3.8	100	2.9		G
11	530	(<4.0G)	200	3.9	100	3.0		2.5
12	550	4.0	200	3.9	100	3.0		2.5
13	480	4.2	200	3.9	100	3.0		2.7
14	450	4.4	210	3.9	100	3.0		2.7
15	400	4.2	210	3.8	100	2.8		2.8
16	360	4.3	220	3.7	100	2.6		3.1
17	320	4.3	220	3.4	110	2.4		3.2
18	270	4.1	210	---	110	2.1		3.2
19	250	4.1	---	---	120	1.8		3.2
20	260	3.5						3.2
21	260	3.1						3.1
22	300	2.7						3.0
23	320	2.3						3.0

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 5

Oslo, Norway (60.0°N, 11.1°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	315	2.6						2.8
01	310	2.6						2.8
02	340	2.3					2.0	2.8
03	< 330	2.3					2.3	2.7
04	310	2.2			---	---		2.8
05	280	2.6	---	---	145	1.4		3.0
06	250	3.4	240	---	125	1.8		3.1
07	250	3.7	225	3.5	115	2.1		3.1
08	375	4.0	220	3.6	110	2.4		3.0
09	400	4.3	215	3.8	110	2.6		2.9
10	380	4.5	210	4.0	105	2.8		2.9
11	350	4.8	205	4.1	105	2.9		3.0
12	350	5.0	210	4.2	105	2.9		3.0
13	370	5.2	210	4.2	105	2.9		2.9
14	360	5.1	210	4.1	110	2.8		3.0
15	340	5.0	220	4.0	110	2.7		3.0
16	330	5.2	225	3.8	110	2.5		3.0
17	300	5.2	235	3.6	115	2.2		3.1
18	260	5.1	240	3.3	120	1.9		3.1
19	255	4.7	250	---	145	1.6		3.2
20	260	4.6			---	E		3.1
21	260	4.1						3.0
22	290	3.9						2.9
23	310	3.0						2.8

Time: 15.0°E.
Sweep: 1.3 Mc to 14.0 Mc in 8 minutes, automatic operation.

Table 6

Upsala, Sweden (59.8°N, 17.6°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	2.5					2.5	2.7
01	320	2.1					2.6	2.6
02	325	2.0					2.4	2.6
03	330	2.1					2.4	2.7
04	290	2.2			---	E	2.5	2.8
05	280	3.0	245	---	130	1.7	2.9	3.0
06	G	< 3.5G	240	3.4	115	2.0	3.3	3.0
07	G	< 3.8G	225	3.6	115	2.3	3.0	2.8
08	455	4.2	220	3.8	110	2.5	3.2	2.8
09	385	4.5	215	3.9	110	2.7	3.1	2.9
10	430	4.7	215	4.0	110	2.8	2.9	2.8
11	340	5.1	205	4.1	110	2.9	3.0	3.0
12	350	5.3	210	4.1	105	2.9		3.0
13	355	5.1	215	4.1	105	2.9		2.9
14	350	5.2	220	4.1	110	2.8		3.0
15	320	5.2	225	4.0	110	2.6		3.0
16	320	5.1	230	3.8	110	2.4		3.0
17	285	5.3	240	3.5	115	2.2		3.0
18	255	5.1	250	3.1	125	1.8		3.1
19	260	4.8	250	---	---	E	2.0	3.0
20	250	4.6						2.9
21	265	3.6						2.9
22	280	3.1						2.8
23	305	2.8					2.4	2.7

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 7

Adak, Alaska (51.9°N, 176.6°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.0						2.8
01	300	2.8						(2.7)
02	300	2.7						(2.8)
03	300	2.6						2.8
04	300	2.6					2.0	2.9
05	320	3.0	280	2.7	130	1.6	2.2	2.9
06	460	< 3.8	250	3.3	120	1.9	2.3	2.7
07	480	4.1	240	3.6	110	2.4	3.5	2.8
08	420	4.4	240	3.8	110	2.8	3.8	2.8
09	520	4.4	220	4.0	110	3.0	4.0	2.5
10	410	4.7	210	4.1	110	3.1	4.6	2.9
11	410	4.9	210	4.1	110	3.1	4.3	2.8
12	390	5.2	210	4.2	110	3.1	4.0	2.9
13	360	5.3	220	4.2	110	3.1	4.3	3.0
14	340	5.4	220	4.2	110	3.0	3.9	3.1
15	300	5.4	230	4.0	110	2.9	3.0	3.1
16	290	5.3	240	3.8	110	2.6	2.3	3.1
17	270	5.4	250	---	120	2.3	2.6	3.2
18	260	5.3	250	---	120	1.8	2.0	3.2
19	250	5.2			140	1.6	1.8	3.1
20	250	5.1					2.1	3.1
21	260	4.6					1.6	3.0
22	250	4.0						3.0
23	270	3.4						(3.0)

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 8

Graz, Austria (47.1°N, 15.5°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						
01	310	3.5						
02	300	3.4						
03	300	3.2						
04	300	2.9						
05	290	3.1						
06	250	3.8		(3.2)				
07	250	4.1	220	3.8				
08	290	4.9	200	4.0		2.8		
09	300	5.4	200	4.0	(110)	3.0	2.9	
10	300	5.9	200	4.3	110	3.1	3.6	
11	300	6.3	200	4.4	110	3.2	3.6	
12	300	6.1	200	4.5	100	3.2	3.5	
13	300	6.3	200	4.5	105	3.2		
14	300	6.5	200	4.4	105	3.2		
15	300	6.4	210	4.2	110	3.0	3.5	
16	280	6.3	210	4.0		2.8		
17	250	6.2	240	3.7				
18	250	6.3						
19	250	6.4						
20	260	5.8						
21	250	5.0						
22	290	4.0						
23	300	3.7						

Time: 15.0°E.
Sweep: 2.5 Mc to 12.0 Mc in 2 minutes.

Table 9

Batavia, Ohio (39.1°N, 84.1°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	2.6						2.8
01	(300)	2.6						(2.8)
02	(300)	2.5						2.8
03	(300)	2.4						2.7
04	(290)	2.3						(2.8)
05	---	(2.1)						(2.8)
06	270	2.6			---	---		3.0
07	290	3.6	240	3.3	120	2.0		3.1
08	400	(4.2)	220	3.7	110	2.5		(2.9)
09	450	(4.2)	210	3.9	110	2.7		(2.7)
10	430	4.8	200	4.0	110	2.9	3.0	2.8
11	400	4.9	190	4.1	110	3.0		2.8
12	400	5.2	180	4.2	110	3.1		2.8
13	380	5.2	200	4.2	110	3.2		2.8
14	360	5.4	210	4.3	110	3.1		2.9
15	340	5.6	210	4.2	110	3.0		3.0
16	340	5.4	220	4.0	110	2.8		2.9
17	320	5.3	220	3.8	110	2.5		3.0
18	290	5.4	240	3.4	120	(2.1)		3.1
19	250	5.4	---	---	---	---		3.1
20	230	4.9						3.1
21	(240)	4.1						3.1
22	(270)	3.6						2.9
23	(300)	3.0						2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds. Mobile unit.

Table 10

San Francisco, California (37.4°N, 122.2°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.3						2.8
01	290	3.2						2.8
02	280	3.1						2.8
03	270	3.0						2.9
04	280	2.9						2.8
05	280	2.9						2.8
06	270	3.8	260	---			2.0	3.1
07	380	4.4	240	3.5	120	(2.3)		3.0
08	360	(5.0)	230	3.9	120	(2.6)		(2.9)
09	360	5.0	210	4.0	120	(2.9)		3.0
10	360	5.5	210	4.2	120	(3.0)	2.9	2.9
11	360	5.7	200	4.2	120	---		2.9
12	360	6.2	210	4.4	110	---		2.8
13	340	6.4	220	(4.3)	---	---		3.0
14	320	6.4	220	4.3	120	---		3.0
15	330	5.9	220	4.2	120	(3.0)		3.1
16	290	6.0	230	4.0	120	2.9		3.2
17	280	5.5	240	3.6	120	2.5		3.2
18	260	5.6	250	---				3.2
19	240	5.1						3.2
20	250	4.5					2.2	3.1
21	260	3.8						2.9
22	280	3.5						2.9
23	290	3.3						2.8

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 11

White Sands, New Mexico (32.3°N, 106.5°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.3						2.8
01	280	3.3						2.8
02	280	3.2						2.8
03	270	3.2						2.9
04	270	3.0						3.0
05	280	2.9						3.0
06	260	4.2	260	---	120	1.8	2.3	3.2
07	280	5.0	230	3.5	110	2.3	2.4	3.3
08	310	5.3	220	4.0	110	2.7	3.1	3.1
09	340	5.5	210	4.2	110	3.0	3.3	3.0
10	350	5.6	200	4.3	100	3.1	3.5	3.0
11	370	6.0	200	4.4	110	3.2	3.4	2.8
12	380	6.4	210	4.4	110	3.3	3.4	2.8
13	340	6.6	210	4.4	110	3.2	3.2	2.9
14	320	6.6	220	4.3	110	3.2	3.2	3.0
15	310	6.4	230	4.2	110	3.0	2.9	3.1
16	300	6.2	230	4.0	110	2.7	2.5	3.1
17	270	6.2	240	3.6	110	2.4	2.5	3.2
18	250	5.8	260	---	---	---	2.6	3.3
19	230	5.3					2.4	3.2
20	240	4.6					2.4	3.1
21	260	3.8					2.2	3.0
22	290	3.3						2.8
23	300	3.2						2.8

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 12

Baton Rouge, Louisiana (30.5°N, 91.2°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.4						2.8
01	320	3.3						2.8
02	300	3.4						2.8
03	300	3.1						2.8
04	300	3.0						2.9
05	300	2.8						2.9
06	280	4.2	---	---	130	---		3.1
07	300	5.0	250	---	120	2.2	3.1	3.2
08	350	5.2	240	4.0	120	2.6	5.8	3.0
09	370	5.4	220	4.2	120	2.9	6.2	2.9
10	380	5.9	210	4.4	120	3.1	4.9	2.8
11	380	6.2	220	4.4	120	3.2	3.6	2.8
12	370	6.6	220	4.5	120	3.3	4.1	2.8
13	360	7.4	240	4.5	120	3.3	4.3	2.9
14	350	7.2	230	4.4	120	3.2	3.7	2.8
15	330	7.0	240	4.3	120	3.1	3.8	3.0
16	320	6.8	250	4.1	120	2.8	3.7	3.0
17	300	6.8	260	3.7	120	2.3		3.0
18	270	6.6						3.1
19	250	6.0					2.4	3.1
20	250	4.8					2.2	3.0
21	280	4.0						2.8
22	310	3.8						2.7
23	310	3.7						2.7

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 13

Okinawa I. (26.3°N, 127.8°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	5.2					2.1	2.8
01	300	5.2						2.7
02	270	5.4					2.2	3.0
03	250	4.2						3.1
04	(300)	3.6						2.8
05	[illegible]	3.6						[illegible]
06	[illegible]	[illegible]						3.2
07	250	7.0	---	---	120	(2.2)	3.6	3.3
08	270	7.2	250	---	120	2.8	4.1	3.3
09	310	7.4	250	---	120	3.1	4.4	3.0
10	330	8.8	240	4.5	120	(3.3)	4.6	2.8
11	340	10.8	240	4.7	120	(3.4)	4.6	2.8
12	340	11.9	240	4.6	120	(3.3)	4.6	2.8
13	320	13.6	250	4.6	120	3.4	4.4	2.9
14	300	13.0	250	4.4	120	3.3	4.3	3.0
15	310	12.9	240	4:4	120	3.2	4.0	3.0
16	290	12.3	250	---	120	2.9	3.5	3.0
17	280	11.4	260	---	120	(2.4)	3.4	3.0
18	260	11.8					3.3	3.1
19	250	9.8					3.2	3.2
20	250	6.7					3.4	3.0
21	330	5.6						2.6
22	350	5.3						2.6
23	340	5.5					3.0	2.7

Time: 127.5°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 14

Maui, Hawaii (20.8°N, 156.5°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.2					1.6	2.8
01	290	4.4						3.0
02	260	4.2						3.1
03	250	3.4					1.8	3.0
04	300	3.2						2.8
05	[illegible]	3.1						2.8
06	270	3.7					1.5	3.0
07	250	5.8	240	---	120	2.1	2.9	3.4
08	280	6.8	230	---	120	2.6	3.9	3.1
09	300	7.4	220	4.5	120	3.0	4.3	3.0
10	340	8.5	210	4.5	110	3.2	4.3	2.7
11	360	9.3	210	4.8	110	3.3	4.4	2.7
12	340	11.0	200	4.7	120	3.4	4.6	2.8
13	310	12.2	220	4.7	120	3.4	4.3	3.0
14	300	12.2	230	4.6	110	3.3	4.2	3.0
15	290	11.7	230	4.5	110	3.2	4.0	3.1
16	280	11.6	230	(4.3)	110	3.0	4.2	3.1
17	270	11.2	240	---	120	2.6	4.2	3.2
18	240	11.0	---	---	(120)	1.9	4.0	3.3
19	230	9.6					3.9	3.4
20	220	7.0					3.4	3.2
21	250	5.0					2.4	2.8
22	290	5.0					2.0	2.7
23	320	4.2					2.0	2.7

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 15

Puerto Rico, W.I. (18.5°N, 67.2°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.9						2.9
01	260	4.8						3.0
02	250	4.8						3.1
03	240	4.3						3.2
04	260	3.5						3.0
05	250	3.2						3.0
06	250	3.2			---	---		3.2
07	230	5.2	220	---	110	2.1		3.5
08	250	5.8	220	---	100	(2.5)		3.4
09	280	6.3	230	(4.3)	100	3.0		3.2
10	320	6.6	220	(4.6)	100	3.2		3.0
11	330	7.8	220	4.6	100	3.4		2.9
12	320	9.4	220	4.6	100	3.5		3.0
13	290	10.0	220	4.6	100	3.5		3.1
14	280	9.8	220	4.6	100	3.4		3.2
15	280	9.4	220	(4.5)	100	3.3		3.2
16	280	9.6	220	(4.3)	110	3.0	4.6	3.1
17	[illegible]	9.4	220	---	110	2.6		3.3
18	240	9.4	230	---	110	---	3.2	3.3
19	220	7.8					2.8	3.3
20	220	6.4					2.2	3.0
21	240	5.6					2.1	3.0
22	270	5.2						2.9
23	280	5.2						2.9

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 16

Panama Canal Zone (9.4°N, 79.9°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.3					2.3	2.7
01	260	6.1					2.6	2.9
02	260	5.5					3.2	2.9
03	260	5.2					2.8	2.8
04	260	4.6					2.0	2.9
05	< 260	3.5					2.9	2.9
06	270	3.2					2.4	2.9
07	260	5.2	240	---	130	2.1	4.0	3.0
08	(300)	6.5	250	4.7	120	2.7	4.0	2.9
09	360	7.6	240	(4.7)	110	3.1	4.2	2.6
10	360	8.8	240	4.7	120	3.3	4.4	2.7
11	380	9.7	240	4.8	120	3.5	5.1	2.6
12	380	10.7	240	4.7	120	3.6	5.0	2.6
13	350	11.8	230	4.7	120	3.6	4.6	2.7
14	330	12.6	240	4.7	110	3.5	5.1	2.8
15	320	12.6	240	4.6	120	3.3	4.6	2.9
16	300	12.6	240	4.4	120	3.0	4.6	2.9
17	280	12.2	240	---	120	2.4	4.2	3.0
18	250	10.4			---	---	4.3	3.0
19	240	9.0					4.2	2.8
20	270	8.0					3.3	2.7
21	270	7.5					2.4	2.9
22	270	7.0					2.5	2.7
23	290	6.5					2.8	2.7

Time: 75.0°W.
Sweep' 1.0 Mc to 25.0 Mc in 15 seconds.

Table 17

Huancayo, Peru (12.0°S, 75.3°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	7.1					4.7	3.2
01	220	6.7					4.5	3.3
02	220	5.8					4.3	3.2
03	[illegible]	[illegible]					3.7	3.2
04	240	3.9						3.3
05	250	[illegible]					4.0	3.3
06	270	4.1					3.4	3.1
07	240	[illegible]			110	[illegible]	5.9	3.3
08	[illegible]	[illegible]	220	---	110	[illegible]	[illegible]	3.1
09	280	[illegible]	210	4.4	110	---	[illegible]	2.8
10	300	9.4	210	4.5	[illegible]	---	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	(4.6)	[illegible]	---	[illegible]	[illegible]
12	320	9.0	[illegible]	4.6	100	---	12.3	[illegible]
13	310	[illegible]	[illegible]	4.6	100	---	12.2	[illegible]
14	[illegible]	9.3	[illegible]	4.4	100	---	11.4	[illegible]
15	(280)	9.4	[illegible]	---	100	---	10.2	2.7
16	(260)	9.5	[illegible]	---	110	---	9.1	2.6
17	240	9.4			110	---	6.9	[illegible]
18	270	9.0			---	---		2.6
19	300	8.3						2.6
20	310	[illegible]						2.7
21	260	[illegible]					2.9	3.0
22	240	[illegible]					4.6	3.2
23	[illegible]	[illegible]					4.6	3.2

Time: [illegible]
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 18

Kiruna, Sweden (67.8°N, 20.5°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.2	
01	---	(3.2)					[illegible]	
02	---	(3.3)					3.8	
03	(350)	(3.1)					3.0	
04	(295)	(3.0)					2.7	
05	(280)	2.9						
06	(265)	3.4						
07	260	3.9	---	---				
08	275	4.4	240	3.4	---	---		
09	290	4.7	230	3.6	120	2.5		
10	300	4.8	230	3.7	120	2.6		
11	290	4.9	220	3.7	---	---		
12	290	5.0	220	3.7	---	2.6		
13	290	4.8	230	3.6	---	---		
14	270	4.7	230	3.5	---	---		
15	260	4.4	240	3.3	---	---		
16	260	4.3	---	---	---	---		
17	275	[illegible]			---	---	3.4	
18	255	3.9			---	---	4.1	
19	(250)	(4.0)					4.1	
20	(260)	(3.6)					4.3	
21	---	(3.6)					5.1	
22	---	(3.4)					4.3	
23	---	---					4.5	

Time: 15.0°E.
Sweep: [illegible] Mc to 15. [illegible] Mc in [illegible] seconds.

Table 19

Fairbanks, Alaska (64.9°N, 147.8°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.1	---
01	---	---					6.0	---
02	---	---					6.4	---
03	---	---					6.0	---
04	---	---			---	---	6.5	---
05	(340)	(2.4)			---	---	6.5	(2.9)
06	(300)	(3.0)			---	---	6.0	(3.0)
07	(290)	(3.7)	---	---	---	---		(3.0)
08	(330)	(3.8)	---	---	---	---		(3.0)
09	360	4.0	240	---	---	---		2.9
10	(360)	4.2	220	3.6	---	---		(3.0)
11	330	4.6	220	(3.7)	---	---		(3.1)
12	320	4.8	220	(3.6)	---	---		(3.1)
13	330	4.7	240	3.6	120	---		3.1
14	320	4.9	240	(3.6)	---	---		3.0
15	300	5.0	(240)	---	---	---		3.1
16	260	4.8	(250)	---	---	---		3.1
17	260	4.5	---	---	---	---		3.1
18	(270)	(3.8)			---	---		3.1
19	250	3.5						3.0
20	(280)	(3.0)					4.2	(3.0)
21	(270)	(2.7)					4.3	(3.0)
22	(300)	(2.3)					4.0	(3.0)
23	---	(2.0)					4.8	(3.0)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 20

Baker Lake, Canada (64.3°N, 96.0°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	2.8			---	---	4.2	3.0
01	280	2.8			---	---	3.8	2.9
02	270	2.8			---	---	4.0	3.0
03	280	2.7			---	---	3.5	2.9
04	300	2.5			---	---	3.7	2.9
05	290	2.8			---	1.9	3.7	3.0
06	270	2.8			100	1.9	4.0	(3.0)
07	280	3.2	---	---	110	2.0	4.2	3.0
08	290	3.8	220	3.0	110	2.6	3.5	3.0
09	300	4.0	210	3.7	100	2.7	3.0	(3.0)
10	300	4.4	220	3.6	100	2.6		3.0
11	360	4.8	240	3.8	100	3.0		(2.9)
12	360	4.8	210	3.8	100	2.8		3.0
13	330	5.0	230	3.9	100	2.9		2.9
14	320	4.9	240	3.8	100	2.9		2.8
15	350	5.0	210	3.7	100	2.8		2.9
16	340	4.8	240	3.4	100	2.5		2.9
17	280	4.6	240	3.2	100	2.2		3.0
18	280	4.4	---	---	110	2.3	4.0	3.0
19	260	4.0	---	---	100	1.7	3.8	3.0
20	270	3.7			130	(1.8)	5.0	2.9
21	270	3.5			---	---	5.4	2.9
22	260	3.0			---	---	4.0	2.9
23	280	2.9			---	---	4.0	3.0

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 21

Churchill, Canada (58.8°N, 94.2°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	2.8			---	---	5.2	(3.0)
01	(310)	2.8			120	2.5	5.0	(3.1)
02	(350)	2.7			---	---	5.0	---
03	(310)	(2.0)			130	2.2	5.0	---
04	340	2.3			130	2.1	4.5	---
05	(350)	(2.9)			130	2.6	4.5	---
06	---	(3.2)			120	3.2		---
07	(300)	3.5			120	3.5		(3.0)
08	(310)	4.0	---	---	120	3.8		(2.8)
09	(360)	(4.2)	230	---	120	3.1		(2.8)
10	(350)	4.2	---	3.9	120	2.7		(2.8)
11	400	4.3	220	3.8	120	2.9		2.8
12	400	4.7	230	3.8	120	2.8		2.8
13	390	4.8	230	3.9	120	2.8		2.8
14	380	5.0	230	3.8	120	2.7		2.9
15	360	5.0	240	3.7	120	2.8		2.8
16	320	5.0	240	3.6	120	2.6		3.0
17	300	4.7	260	3.2	120	2.4		2.9
18	290	4.0	---	---	120	2.6		3.0
19	300	3.8	---	---	120	2.7	4.4	2.9
20	300	3.7	---	---	120	2.6	5.0	3.0
21	300	3.3			120	3.0	7.0	(2.8)
22	300	3.1			---	---	6.6	(3.0)
23	290	3.0			---	---	6.0	(3.0)

Time: 90.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 22

Prince Rupert, Canada (54.3°N, 130.3°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	1.8					1.4	2.8
01	320	2.0			---	---	1.8	2.7
02	350	2.0			---	---	2.0	2.7
03	350	2.2			---	---	2.4	2.7
04	360	2.2			---	---	2.0	2.7
05	380	2.2			---	---	2.1	2.6
06	350	2.0			---	---		2.7
07	300	2.8	---	---	---	E		2.9
08	280	3.6	250	3.0	120	1.9		3.0
09	340	3.8	220	3.4	110	2.3		2.9
10	400	4.2	210	3.7	110	2.6		2.8
11	360	4.3	220	3.8	110	2.8		2.7
12	400	4.5	220	3.9	110	2.8		2.7
13	390	4.8	230	3.9	110	2.8		2.7
14	380	4.7	220	3.9	110	2.8		2.8
15	360	4.8	220	3.7	110	2.7		2.8
16	300	4.9	240	3.7	110	2.5		2.9
17	270	5.0	240	---	110	2.3		3.0
18	250	4.5	---	---	130	1.9		3.0
19	260	4.0			---	1.4		3.0
20	260	3.4			---	---		3.0
21	270	2.5			---	---		3.0
22	290	2.0						3.0
23	300	2.0						2.9

Time: 120.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 23

Winnipeg, Canada (49.9°N, 97.4°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	2.4					3.1	(2.8)
01	360	2.3					3.2	2.7
02	350	2.5					3.6	2.8
03	360	2.6					4.0	---
04	340	(2.5)					3.2	---
05	(360)	(2.4)					4.0	---
06	340	2.2			---	---	3.6	(3.0)
07	270	3.2			120	1.8		3.2
08	280	3.8	230	3.4	110	2.3		3.1
09	360	4.4	220	3.8	110	2.6		3.1
10	360	4.6	220	3.9	110	2.8		3.0
11	320	4.8	220	3.9	110	2.9		3.0
12	400	4.9	220	4.0	110	3.0		3.0
13	380	5.1	220	4.0	110	3.0		3.0
14	340	5.2	220	4.0	110	3.0		3.1
15	340	5.2	230	3.9	110	2.8		3.1
16	320	5.2	230	3.8	110	2.6		3.0
17	280	5.2	240	3.5	110	2.3		3.2
18	260	5.0	---	---	110	1.8		3.2
19	240	4.5						3.1
20	260	3.6						2.9
21	280	3.1						3.0
22	290	2.7						3.0
23	300	2.6					3.1	2.9

Time: 90.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 24

St. John's, Newfoundland (47.6°N, 52.7°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.7						2.8
01	310	2.4						2.8
02	300	2.4						2.9
03	300	2.1						3.0
04	300	1.8						3.0
05	300	1.9						3.0
06	250	3.2	---	---	120	1.8		3.3
07	250	4.3	230	3.0	110	2.2		3.4
08	290	4.7	220	3.7	110	2.6		3.3
09	310	5.1	200	3.9	110	2.8		3.3
10	330	5.3	200	4.0	110	3.0		3.2
11	320	5.8	200	4.0	110	3.0		3.2
12	300	5.9	210	4.2	110	3.0		3.2
13	300	6.2	220	4.2	110	3.0		3.2
14	290	6.2	220	4.0	110	2.8		3.3
15	290	6.2	230	3.8	110	2.6		3.2
16	280	6.1	240	3.5	120	2.3		3.3
17	260	6.2	260	2.9	120	1.8		3.3
18	240	5.6			---	---		3.2
19	240	5.0						3.1
20	260	4.0						3.0
21	270	3.1						3.0
22	280	3.2						2.9
23	300	2.9						2.8

Time: 60.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 25

Schwarzenburg, Switzerland (46.8°N, 7.3°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.9						3.1
01	300	2.9						3.1
02	300	3.0						3.1
03	300	2.7						3.1
04	300	2.6						3.2
05	280	2.4						3.2
06	300	2.4						3.4
07	230	3.6			---	---		3.6
08	220	4.4	---	---	100	2.2		3.7
09	225	5.2	200	3.7	100	2.5		3.6
10	260	5.5	200	4.0	100	2.8		3.6
11	300	5.8	200	4.2	100	2.8		3.5
12	270	5.9	200	4.2	100	2.9		3.6
13	300	6.0	200	4.3	100	2.9		3.5
14	280	6.0	200	4.2	100	3.0		3.5
15	260	6.0	210	4.0	100	2.8		3.6
16	230	6.0	210	4.0	100	2.6		3.6
17	220	6.0			100	2.2		3.6
18	230	5.8			---	---		3.7
19	220	5.9						3.6
20	220	5.2						3.5
21	230	4.2						3.5
22	280	3.3						3.2
23	300	3.1						3.1

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 26

Ottawa, Canada (45.4°N, 75.7°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.5						2.8
01	310	2.2						2.8
02	350	2.2						2.7
03	320	2.2					2.4	2.8
04	(380)	2.0					3.0	2.7
05	(380)	2.4					2.4	(2.8)
06	(280)	2.6			---	---	2.3	3.0
07	260	3.9	---	---	120	2.0		3.2
08	280	4.6	230	3.6	120	2.5		3.2
09	310	5.0	220	3.8	120	2.8		3.2
10	320	5.3	220	4.0	120	2.9		3.0
11	320	5.6	210	4.0	120	3.0		3.0
12	320	5.8	220	4.2	110	3.0		3.0
13	320	6.2	230	4.2	120	3.0		3.0
14	320	6.0	230	4.0	120	3.0		3.0
15	300	6.0	240	3.9	120	2.9		3.0
16	300	5.8	240	3.6	120	2.7		3.0
17	280	6.0	250	3.2	120	2.2		3.0
18	260	5.4	---	---	---	---		3.0
19	250	5.2						3.0
20	260	4.2						3.0
21	280	3.2						2.9
22	280	3.0						2.8
23	310	2.5						2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 27

Wakkanai, Japan (45.4°N, 141.7°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	4.4						2.7
01	320	4.1						2.6
02	320	4.0						2.7
03	310	3.9						2.8
04	300	4.0						2.8
05	300	3.7						2.8
06	290	4.6			---	---		3.0
07	280	5.4	---	---	120	2.2		3.2
08	300	6.4	290	3.6	120	2.8		3.1
09	300	7.2	260	4.0	120	---		3.1
10	300	7.6	270	4.2	120	---		3.1
11	300	8.0	250	4.3	120	---		3.0
12	300	8.0	250	4.4	120	---		3.0
13	300	7.6	270	4.3	120	---		3.0
14	300	7.5	270	4.0	120	---		3.1
15	290	7.1	270	4.0	120	2.6		3.1
16	290	7.0	280	---	120	2.4		3.1
17	280	6.7			120	---		3.0
18	280	6.0						3.0
19	290	5.4						2.9
20	300	5.0						2.8
21	300	4.7						(2.8)
22	320	4.5						2.8
23	330	4.3						2.7

Time: 135.0°E.
Sweep: 1.0 Mc to 15.5 Mc in 2 minutes.

Table 28

Akita, Japan (39.7°N, 140.1°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.3						2.9
01	280	4.1						2.9
02	270	3.8						3.0
03	270	3.8						3.0
04	240	3.5						3.1
05	260	3.4						3.0
06	230	4.8			---	1.8		3.3
07	220	6.1	---	---	110	2.2		3.5
08	230	6.8	220	---	110	2.5	3.1	3.4
09	250	7.6	220	4.2	110	2.8	3.5	3.3
10	260	8.1	210	4.3	110	3.0	3.5	3.3
11	260	8.8	220	4.3	110	3.1	3.6	3.3
12	260	8.8	220	4.4	110	3.1	2.8	3.3
13	260	8.8	220	4.2	110	3.1		3.3
14	250	8.3	220	4.1	110	3.0		3.3
15	250	7.5	220	3.8	110	2.8		3.4
16	240	7.1	220	---	110	2.5		3.3
17	230	7.0	---	---	120	2.1	2.5	3.4
18	220	6.4					2.4	3.4
19	230	5.2					2.2	3.2
20	250	4.8					2.2	3.1
21	250	4.6						3.0
22	270	4.3						3.0
23	280	4.2						2.9

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 29

Tokyo, Japan (35.7°N, 139.5°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.1					1.7	2.7
01	290	3.9						2.8
02	280	3.8					1.8	2.8
03	280	3.8					2.0	2.9
04	260	3.3					1.9	2.9
05	280	3.3						2.9
06	250	5.0					2.0	3.2
07	250	6.8	250	---	110	2.1	2.6	3.3
08	250	7.3	240	---	110	2.6	3.2	3.3
09	260	7.8	230	4.2	110	2.8	3.4	3.2
10	280	8.6	220	4.5	110	3.0	4.0	3.2
11	280	9.4	220	4.6	110	3.1	3.9	3.2
12	280	10.1	230	4.5	110	3.2	3.8	3.2
13	280	9.6	220	4.5	110	3.1	3.6	3.2
14	270	9.4	230	4.2	110	3.0	3.6	3.2
15	270	8.2	230	4.0	110	3.0		3.3
16	260	7.7	240	3.8	110	2.6		3.3
17	250	7.4	---	---	110	2.2	2.5	3.3
18	230	6.8					2.7	3.3
19	240	5.0					2.2	3.2
20	250	4.5					2.2	3.0
21	280	4.5						2.8
22	290	4.4					2.0	2.8
23	300	4.4					1.9	2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 30

Yamagawa, Japan (31.2°N, 130.6°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.0					2.5	3.0
01	270	3.8					2.0	3.0
02	270	3.7					1.9	3.1
03	250	3.7						3.1
04	250	3.4					2.1	3.1
05	250	3.0					2.0	3.0
06	260	3.1					1.8	3.0
07	230	5.4			130	1.9		3.4
08	230	6.8	---	---	110	2.3		3.5
09	240	7.2	220	4.3	100	2.8		3.4
10	260	7.6	210	4.4	100	3.0		3.2
11	280	8.2	200	4.5	100	3.1	4.0	(3.2)
12	270	11.6	210	4.6	100	3.2	3.8	3.3
13	260	11.0	220	4.5	100	3.2	4.2	3.3
14	260	11.8	220	4.5	100	3.2	3.9	(3.3)
15	250	10.4	210	4.3	100	3.1	3.9	3.3
16	250	8.2	220	3.9	100	2.8	3.7	(3.4)
17	240	7.4	230	3.5	100	2.5	3.6	3.5
18	230	7.4					3.0	3.4
19	210	6.3					2.7	3.5
20	210	4.7					3.0	3.3
21	250	3.8					3.0	3.0
22	290	4.0					2.5	2.9
23	300	3.8					2.3	2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 2 minutes.

Table 31

Cocoa, Florida (28.2°N, 80.6°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.9						2.8
01	290	3.9						2.8
02	290	3.9						2.8
03	280	3.7						3.0
04	270	3.4						2.8
05	280	3.4						2.8
06	280	3.2						2.9
07	260	4.8	250	---	140	1.8		3.2
08	260	5.6	240	---	120	2.3		3.3
09	290	6.1	230	3.8	120	2.7		3.1
10	300	6.5	220	4.2	120	3.0		3.0
11	330	7.2	220	4.5	110	3.2		2.9
12	320	7.8	220	4.5	110	(3.3)		3.0
13	310	8.2	230	4.4	120	(3.3)		2.9
14	300	8.3	240	4.4	120	(3.3)		3.0
15	310	8.2	240	4.3	120	3.1		3.0
16	290	8.3	250	4.1	120	2.9	3.2	3.1
17	270	7.6	250	---	120	2.4	3.1	3.2
18	250	7.0	---	---	130	(1.8)	3.0	3.2
19	240	5.8					2.3	3.1
20	250	4.4						2.9
21	280	4.0						2.8
22	300	4.0						2.8
23	300	3.9						2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 32

Reykjavik, Iceland (64.1°N, 21.8°W) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.5	---
01	---	---					4.3	---
02	---	---					4.3	---
03	---	---					4.4	---
04	---	---					4.6	---
05	---	(2.8)					3.4	---
06	(330)	(3.0)					3.5	(2.9)
07	(300)	(1.9)			---	---	2.4	(2.9)
08	270	3.1			---	---		3.2
09	260	3.8	---	---	---	---		3.3
10	260	4.2	---	---	---	---		3.4
11	290	4.6	---	---	---	---		3.3
12	280	5.2	---	---	---	---		3.2
13	260	5.6	---	---	---	---		3.3
14	260	5.3	---	---	---	---		3.2
15	250	5.1	---	---				3.3
16	260	4.3						3.1
17	270	4.4					1.8	3.2
18	290	(3.5)					3.7	3.0
19	300	(3.6)					3.8	(3.1)
20	(320)	(3.3)					4.2	(3.1)
21	(300)	(3.4)					4.4	(3.0)
22	370	(3.0)					4.3	---
23	---	---					4.5	---

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 33

Wakkanai, Japan (45.4°N, 141.7°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.3						2.7
01	310	3.3						2.8
02	300	3.4						2.8
03	310	3.4						2.8
04	300	3.6						3.0
05	300	3.0						2.8
06	290	3.2						2.9
07	270	5.0	---	---	120	1.6		3.1
08	260	6.8	---	---	120	2.0		3.2
09	270	7.2	---	---	120	2.6		3.2
10	290	8.2	260	4.0	120	2.9		3.1
11	290	8.4	280	4.2	120	3.0		3.1
12	280	8.6	280	4.0	120	3.0		3.1
13	280	8.0	260	4.0	120	3.0		3.1
14	290	7.9	270	4.0	110	2.9		3.1
15	280	7.3	---	---	120	2.6		3.2
16	270	6.6	---	---	120	2.0		3.2
17	260	5.6						3.1
18	280	4.3						3.0
19	290	4.0						3.0
20	300	3.3						2.8
21	320	3.2						2.8
22	320	3.6						2.8
23	320	3.4						2.7

Time: 135.0°E.
Sweep: 1.0 Mc to 15.5 Mc in 2 minutes.

Table 34

Akita, Japan (39.7°N, 140.1°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.4					1.6	2.9
01	270	3.6						3.0
02	280	3.5						3.0
03	260	3.5						3.1
04	250	3.2						3.0
05	270	2.9						3.0
06	240	3.1						3.2
07	220	5.2			---	1.9		3.4
08	220	6.4	210	---	110	2.3		3.5
09	240	7.4	220	---	110	2.6	3.1	3.4
10	250	8.0	220	4.3	110	2.8		3.3
11	260	8.8	220	4.3	110	3.0		3.3
12	250	8.8	220	4.4	110	3.0		3.4
13	250	7.8	220	4.1	110	3.0		3.4
14	240	7.8	220	3.9	110	2.8		3.4
15	230	7.2	220	3.4	110	2.6		3.5
16	220	6.6	---	---	110	2.3		3.5
17	210	5.7			---	1.9	2.1	3.5
18	220	4.4					2.0	3.3
19	240	4.0					2.4	3.2
20	240	3.4					2.4	3.2
21	270	3.3					2.2	3.0
22	280	3.4					1.9	3.0
23	290	3.4						3.0

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 35

Tokyo, Japan (35.7°N, 139.5°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.4					1.6	2.8
01	280	3.6					1.7	3.0
02	260	3.4					1.8	3.0
03	260	3.2					1.6	3.0
04	250	3.1						3.1
05	300	2.8						2.9
06	260	3.1						3.0
07	230	5.7	---	---	120	1.8		3.3
08	250	6.6	240	---	120	2.4		3.3
09	260	8.2	230	---	110	2.7	3.2	3.2
10	270	8.8	220	4.3	110	3.0		3.2
11	270	9.2	220	4.4	110	3.2		3.3
12	270	9.4	220	4.4	110	3.2		3.3
13	260	8.5	230	4.3	110	3.2		3.3
14	260	8.2	230	4.1	110	3.0		3.3
15	250	7.6	220	---	110	2.7		3.4
16	240	6.9	220	---	110	2.3		3.4
17	230	5.8	---	---	120	1.8	2.0	3.4
18	230	5.0					2.4	3.2
19	240	4.4					2.0	3.2
20	250	3.6						3.1
21	260	3.4						3.0
22	300	3.4						2.8
23	300	3.4						2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 36

Yamagawa, Japan (31.2°N, 130.6°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.4					2.1	2.9
01	260	3.6					1.9	3.0
02	250	3.3					2.5	3.1
03	250	3.5					2.1	3.2
04	240	3.2					2.0	3.1
05	270	2.7					2.3	2.9
06	300	2.6						2.8
07	250	4.0						3.2
08	230	5.8			110	2.1		3.5
09	230	7.3	220	---	100	2.6	3.4	3.5
10	250	7.8	220	---	100	3.0	3.8	3.3
11	260	(8.4)	220	4.5	100	3.1	4.0	3.3
12	260	9.0	220	4.5	100	3.2	4.0	3.3
13	260	9.2	220	4.5	100	3.2	4.0	3.3
14	250	(8.8)	220	4.5	100	3.2	4.0	3.3
15	250	8.2	210	4.1	100	3.0	4.0	3.4
16	240	7.4	210	---	100	2.7		3.5
17	230	7.0	---	---	100	2.1		3.4
18	210	5.8					2.5	3.5
19	210	5.0					2.5	3.3
20	230	4.1					2.3	3.2
21	240	3.9					2.3	3.0
22	260	3.4					2.0	3.0
23	280	3.4					2.2	2.9

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 2 minutes.

Table 37

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.1					2.0	3.0
01	250	4.0					2.8	3.0
02	240	3.7					2.0	3.0
03	250	3.2					2.1	3.0
04	270	3.0					2.2	3.0
05	260	2.9					2.5	2.9
06	250	4.1	---	---	130	1.7	2.4	3.2
07	260	5.7	240	3.9	110	2.4	3.1	3.3
08	300	6.5	220	4.3	110	2.9	3.8	3.0
09	320	7.4	210	4.6	110	3.2	4.0	3.0
10	330	8.0	210	4.7	110	3.4	4.2	2.9
11	320	8.5	200	4.8	110	3.6	4.2	2.9
12	310	9.0	200	4.8	110	3.7	3.9	2.9
13	320	9.0	200	4.8	110	3.7	3.9	2.9
14	310	8.9	200	4.7	110	3.5	3.8	2.9
15	300	8.8	210	4.6	110	3.4	3.9	3.1
16	280	8.4	210	4.4	110	3.1	3.8	3.1
17	270	7.5	220	3.9	110	2.7	3.6	3.2
18	250	7.3	230	3.1	110	2.2	3.3	3.2
19	230	6.7			---	---	2.4	3.2
20	240	6.7					2.2	3.1
21	240	5.6					2.0	3.2
22	250	4.6					2.1	3.0
23	270	4.3					2.0	2.9

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 38

Watheroo, W. Australia (30.3°S, 115.9°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.1					4.2	2.8
01	270	4.0					4.2	2.9
02	270	3.7					4.0	3.0
03	275	3.1					3.2	2.9
04	300	2.9					2.9	2.9
05	300	2.8					2.8	2.8
06	260	3.4	---	---		1.4	2.8	3.1
07	250	4.4	240	3.3		2.2	2.8	3.2
08	330	4.8	240	3.9		2.6	3.4	3.1
09	350	5.2	240	4.2		3.0	4.2	3.0
10	375	5.6	230	4.2		3.2	4.5	2.9
11	340	6.3	230	4.3		3.2	4.0	3.0
12	350	6.6	220	4.4		3.2	4.9	2.9
13	330	7.4	225	4.4		3.3	4.5	2.9
14	330	7.1	235	4.3		3.3	3.6	2.9
15	320	7.3	230	4.2		3.2	3.6	3.0
16	300	6.5	250	4.0		3.0	4.0	3.1
17	285	6.0	240	3.8		2.6	3.0	3.1
18	250	6.2	240	---		2.0	3.0	3.1
19	250	5.7					2.8	3.1
20	250	5.4					2.8	3.0
21	260	4.8					3.0	2.8
22	280	4.2					3.0	2.8
23	280	4.2					3.2	2.8

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 39

Capetown, Union of S. Africa (34.2°S, 18.3°E) February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.7					2.0	2.9
01	280	3.6					2.0	2.8
02	270	3.6					2.2	3.0
03	260	3.2					2.0	3.0
04	270	3.0					2.0	2.9
05	280	3.0						2.9
06	280	3.1			---	E	1.6	2.9
07	250	4.9	250	---	120	2.0	2.4	3.2
08	300	5.8	240	4.0	120	2.5	3.2	3.1
09	320	6.8	230	4.2	110	3.0	3.7	3.0
10	320	7.4	220	4.4	110	3.2	4.0	2.9
11	330	7.6	210	4.7	110	3.4	3.8	2.8
12	330	8.0	210	4.7	110	3.4	4.0	2.9
13	320	8.4	210	4.7	110	3.5	4.0	2.9
14	320	8.2	210	4.7	110	3.5	3.8	2.9
15	320	8.0	210	4.6	110	3.4		2.9
16	300	7.6	220	4.5	110	3.1	3.6	3.0
17	280	7.3	220	4.1	110	3.0	3.2	3.1
18	270	6.8	230	3.7	110	2.6	3.1	3.2
19	250	6.6	240	3.0	120	1.9	2.3	3.2
20	240	6.0			---	---		3.2
21	240	5.2					2.1	3.2
22	250	4.4					2.1	3.0
23	270	3.9					2.2	2.9

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 40*

Inverness, Scotland (57.4°N, 4.2°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	(2.0)						(2.8)
01	330	(2.0)						(2.7)
02	325	(1.8)						(2.7)
03	315	1.6					1.3	(2.6)
04	305	1.7					2.6	2.7
05	295	(1.8)					2.0	(2.8)
06	(310)	(1.8)					1.7	(2.8)
07	(295)	(2.0)						(2.7)
08	270	(2.4)						(2.9)
09	235	4.3			(120)	1.8	2.8	3.3
10	230	5.3			150	2.1		3.4
11	230	6.0			135	2.3		3.4
12	230	6.7			135	2.3		3.4
13	235	6.9	(215)		135	2.3		3.4
14	235	6.6			140	2.2		3.4
15	225	6.2			155	2.1	2.2	3.4
16	225	(6.0)				1.8	1.7	3.4
17	235	5.0						3.2
18	255	3.8						3.1
19	275	(2.7)						(3.0)
20	310	(2.3)						(2.8)
21	335	2.2						(2.6)
22	355	(2.1)						(2.7)
23	350	(2.2)						(2.7)

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 41*

Slough, England (51.5°N, 0.6°W) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.7					2.4	2.8
01	285	2.8					2.9	2.8
02	290	2.5					3.5	2.8
03	285	2.2					3.8	2.8
04	280	1.9					3.3	2.8
05	285	1.8					4.2	2.9
06	300	1.7					3.9	2.9
07	305	1.9					4.0	2.8
08	235	4.1			155	1.7	3.7	3.3
09	225	6.0			135	2.1	4.3	3.5
10	230	6.5	230	3.5	130	2.3	4.2	3.5
11	230	6.9	230	3.7	130	2.5	4.3	3.5
12	230	6.9	220	3.8	130	2.6	4.2	3.4
13	235	7.2	220	3.7	130	2.6	4.4	3.4
14	235	7.3	235	3.6	130	2.4	4.4	3.4
15	225	6.5	225	3.2#	135	2.2	3.9	3.5
16	220	6.1			145	1.8	3.4	3.4
17	220	5.6					2.9	3.3
18	235	4.2						3.2
19	260	3.0						3.0
20	290	2.6						2.9
21	305	2.5					2.0	2.8
22	315	2.5						2.8
23	320	2.4						2.7

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 42*

Formosa, China (25.0°N, 121.5°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.6						3.2
01	280	3.8						3.4
02	270	3.4						3.5
03	260	3.0						3.5
04	330	2.9						3.2
05	370	2.6			---	---		3.0
06	340	2.6			---	---		3.1
07	260	5.2			---	---		3.5
08	260	7.8	250	4.1	130	3.0	3.1	3.7
09	270	9.1	240	4.4	130	3.2	3.9	3.7
10	260	9.3	240	4.6	120	3.3	4.3	3.8
11	280	10.0	220	4.6	120	3.5	4.4	3.6
12	280	11.6	210	4.6	120	3.8	4.5	3.5
13	280	13.2	220	4.8	120	---	4.2	< 3.5
14	280	13.5	220	4.5	120	3.0	4.2	3.4
15	270	12.8	230	4.4	120	3.0	3.8	3.4
16	260	11.6	230	4.3	120	3.1	3.8	3.5
17	240	10.3	225	3.6	120	2.9	3.2	3.8
18	220	7.2	---	---	120	---	2.9	3.8
19	240	6.0	---	---	---	---	2.6	3.5
20	240	6.4					3.4	3.6
21	240	5.2						3.8
22	250	4.0						3.6
23	320	3.6						3.2

Time: 120.0°E.
Sweep: 2.3 Mc to 14.5 Mc in 15 minutes, manual operation.

Table 43*

Singapore, British Malaya (1.3°N, 103.8°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.8						2.8
01	265	4.2						2.9
02	270	3.8						2.9
03	265	3.2						2.9
04	(265)	3.0						2.9
05	(265)	2.8						2.9
06	280	3.2						2.9
07	265	5.8	240		130	2.3		3.0
08	305	7.2	230		120	2.8	3.8	2.9
09	335	7.8	220		(115)	(3.0)	4.2	2.6
10	395	7.9	215	4.7			4.0	(2.3)
11	425	6.4	210	4.8			4.2	
12	425	8.8	210	4.8			4.5	(2.2)
13	390	9.0	205	4.7			4.4	2.2
14	385	8.8	205	4.6			4.2	2.2
15	375	9.0	215				4.3	2.2
16	355	9.1	230				3.9	2.3
17	320	9.2	25		125	(2.5)	3.4	2.4
18	275	8.8					2.6	2.4
19	315	8.4						2.5
20	325	7.2						(2.6)
21	280	7.3						2.9
22	245	7.1						(3.1)
23	235	5.7						3.0

Time: 105.0°E.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.

Table 44

Brisbane, Australia (27.5°S, 153.0°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	6.3					3.2	2.9
01	280	5.4					3.6	2.8
02	270	4.8					3.9	2.9
03	275	4.0					2.5	2.9
04	290	4.0					2.5	2.9
05	275	3.6			---	E		3.0
06	255	4.5	240	3.3	110	2.3		3.2
07	345	4.7	220	4.0	110	---		3.1
08	380	5.5	220	4.4	110	3.2	4.3	2.8
09	360	6.3	220	4.6	110	---	4.4	2.8
10	360	6.9	210	4.6	110	---	5.2	2.9
11	335	7.4	200	4.8	---	---	5.9	2.9
12	355	7.5	210	5.0	---	3.8	6.4	2.8
13	340	7.6	220	4.8	100	3.8	4.4	2.8
14	330	7.5	220	4.6	100	3.6	5.2	2.9
15	320	7.6	210	4.5	110	3.4	4.3	3.0
16	300	7.7	220	4.4	110	3.1	4.0	3.1
17	290	7.2	220	4.1	110	2.8	3.4	3.0
18	260	6.7	245	3.2	---	---	4.4	3.0
19	260	6.7					4.7	2.8
20	290	6.3					4.6	2.8
21	300	6.5					4.0	2.7
22	300	6.6					3.8	2.7
23	280	6.4					3.2	2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 45

Watheroo, W. Australia (30.3°S, 115.9°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.6					4.3	2.8
01	275	4.3					4.2	2.9
02	290	3.8					4.0	2.9
03	280	3.4					3.0	2.9
04	300	3.0					3.1	2.8
05	300	3.0					3.0	2.8
06	260	3.8	265	---		1.9	2.9	3.0
07	320	4.5	230	3.6		2.4	3.0	3.0
08	370	5.0	230	4.0		2.9	4.2	2.9
09	430	5.0	220	4.2		3.2	4.1	2.7
10	400	5.4	220	4.3		3.3	5.0	2.6
11	410	6.0	230	4.4		3.3	4.2	2.7
12	390	6.2	220	4.5		3.3	5.0	2.8
13	350	6.8	225	4.5		3.3	4.5	2.8
14	360	6.3	220	4.4		3.3	4.6	2.9
15	345	6.4	235	4.3		3.3	5.0	2.9
16	350	6.2	240	4.1		3.1	4.5	3.0
17	325	6.0	230	3.9		2.8	4.4	3.0
18	300	5.6	230	3.4		2.3	3.6	3.0
19	260	5.4					3.3	3.0
20	260	5.4					4.1	2.9
21	280	4.9					3.3	2.8
22	300	4.6					3.0	2.8
23	300	4.7					3.3	2.8

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 46

Canberra, Australia (35.3°S, 149.0°E) January 1952*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(250)	(5.1)					3.4	---
01	(240)	4.4					3.8	(3.1)
02	(250)	4.0					3.8	3.1
03	(265)	3.4					3.7	(2.7)
04	(270)	(3.1)					3.0	(2.8)
05	(290)	3.2	---	---	---	(1.4)	3.5	2.9
06	255	4.0	---	---	100	(2.1)		3.2
07	---	---	220	3.9	100	2.7	3.7	---
08	---	---	---	4.1	100	3.1	4.2	---
09	---	---	---	---	100	3.4	6.5	---
10	---	---	---	---	100	3.5	(7.8)	---
11	---	---	---	---	100	3.5	7.5	---
12	---	---	---	---	---	---	7.7	---
13	---	---	---	---	100	3.6	7.0	---
14	---	---	---	---	100	3.5	5.5	---
15	---	---	---	---	100	3.5	6.4	---
16	---	(7.2)	---	4.3	100	3.3	6.8	(3.2)
17	280	6.6	200	4.1	100	3.0	5.5	3.3
18	(270)	(7.0)	230	(3.8)	100	2.5	3.5	(3.3)
19	(250)	(6.4)			---	---	4.0	(3.5)
20	245	6.3					4.0	(3.1)
21	(250)	---					3.4	---
22	(265)	---					3.9	---
23	(270)	(5.6)					3.7	---

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.
*No record 17th through 31st.

Table 47

Hobart, Tasmania (42.8°S, 147.4°E) January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.0					3.1	2.7
01	265	3.4					3.2	2.8
02	260	3.5					3.1	2.9
03	280	2.9					2.6	2.8
04	265	3.0					3.0	2.9
05	250	3.7			120	1.8	2.5	3.0
06	250	4.3	250	4.0	100	2.4	3.0	3.0
07	340	4.7	220	4.3	100	3.0	3.6	2.9
08	350	5.1	220	4.5	100	3.2	5.0	2.9
09	360	5.5	200	4.5	100	3.5	5.4	2.9
10	390	5.5	200	4.6	100	3.5	5.5	2.8
11	390	5.5	200	4.6	100	3.6	5.8	2.8
12	400	5.5	200	4.6	100	3.7	4.5	2.8
13	400	5.6	200	4.6	100	3.6	5.5	2.7
14	400	5.9	200	4.6	100	3.5	4.0	2.7
15	350	6.0	200	4.5	100	3.5	4.0	2.8
16	350	6.0	210	4.5	100	3.2	3.3	2.8
17	310	6.4	230	4.3	100	3.0	3.5	2.9
18	250	6.2	---	---	100	2.5	3.8	3.0
19	250	6.0			---	E	4.4	3.0
20	250	6.1					4.1	2.9
21	250	5.6					4.0	2.8
22	260	5.2					4.6	2.8
23	250	5.0					3.5	2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 48

Reykjavik, Iceland (64.1°N, 21.8°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	(3.3)					5.0	---
01	(320)	(3.3)					4.8	---
02	(320)	(3.2)					5.0	2.8
03	(340)	(3.4)					5.0	(3.0)
04	330	3.4					4.2	2.9
05	300	(3.5)					3.0	(2.9)
06	310	(3.1)					2.6	(3.1)
07	300	(2.6)					1.7	(3.0)
08	300	2.2			---	---	1.1	3.1
09	260	2.9			---	---		3.2
10	260	4.3			---	---		3.3
11	240	5.2			---	---		3.4
12	240	6.0			---	---		3.4
13	240	5.9			---	---		3.4
14	240	5.2						3.4
15	240	4.6					2.0	3.4
16	240	4.2					2.5	3.2
17	230	(3.4)					3.5	(3.2)
18	270	(3.0)					3.1	(3.1)
19	320	(3.5)					4.3	(3.0)
20	(270)	(3.2)					4.0	(3.0)
21	(310)	(3.5)					4.6	(2.8)
22	(300)	(3.3)					4.7	(3.0)
23	(360)	(3.4)					5.0	---

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 49*

Ibadan, Nigeria (7.4°N, 4.0°E) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	8.0						3.0
01	250	7.0						3.0
02	260	6.4						3.0
03	255	5.6						3.1
04	240	5.3						3.4
05	235	(4.0)					1.4	3.3
06	255	5.4	250	(1.5)#	135	1.6	2.7	3.2
07	240	7.9	235		120	2.4	5.1	3.0
08	235	9.0	230		120	3.0	7.0	2.7
09	240	9.2	215		110	3.3	10.0	2.5
10	---	8.9	210		110	3.5	11.0	(2.5)
11	(335)#	8.6	210		110	3.6	10.8	2.5
12		9.0	210		110	3.6	13.2	2.5
13	325	9.6	205		115	3.6	12.6	2.5
14		9.3	205		110	3.4	11.6	2.4
15	270#	9.7	225		115	3.0	9.5	2.4
16	240	9.9	240		115	2.6	8.8	2.4
17	260	9.7	245		125	2.0	3.2	2.4
18	290	9.6					2.6	2.4
19	315	9.0						2.4
20	295	9.4					1.2	2.6
21	270	9.2					1.3	2.8
22	260	8.5						2.9
23	245	7.7						3.0

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 50*

Falkland Is. (51.7°S, 57.8°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	325	7.4					3.5	2.5
01	320	7.3					3.2	2.5
02	310	6.9					3.0	2.6
03	320	6.6						2.5
04	335	6.8	285	3.3				2.5
05	340	7.5	255	3.7	160#	2.2	2.8	2.5
06	345	7.6	255	4.1	135	2.6	3.4	2.5
07	345	7.4	250	4.4	125	2.9	4.4	2.6
08	360	7.3	250	4.7	120	3.2	5.0	2.6
09	375	7.4	240	4.7	120	3.3	5.0	2.6
10	375	7.6	245	4.7	120	3.4	5.1	2.6
11	375	7.8	235	4.8	115	3.5	4.7	2.6
12	370	7.7	240	4.8	120	3.5	4.6	2.7
13	355	7.6	235	4.7	120	3.5	4.9	2.8
14	340	7.4	245	4.7	120	3.4	4.4	2.8
15	340	7.0	245	4.6	120	3.3	5.0	2.8
16	335	7.1	250	4.5	125	3.1	4.8	2.8
17	320	7.4	245	4.3	130	2.8	5.0	2.9
18	300	7.7	255	4.0	145	2.4	4.9	2.9
19	280	7.6					4.4	3.0
20	285	7.0					3.7	2.8
21	315	7.3					4.6	2.6
22	325	7.5					3.4	2.6
23	325	7.5					3.0	2.5

Time: 60.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except foF2 and fEs, which are median values.
#One or two observations only.

Table 51

Delhi, India (28.6°N, 77.1°E) October 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00	300	4.1						(3.4)
01	---	(3.9)						
02								
03								
04	280	4.9						(3.5)
05	280	5.4						
06	280	6.3						
07	260	7.9						
08	280	8.7						(3.6)
09	280	9.9						
10	290	10.5						
11	300	11.0						
12	300	11.3						3.3
13	300	11.8						
14	300	11.8						
15	300	11.6						
16	290	11.5						3.5
17	300	11.0						
18	280	10.0						
19	280	7.7						
20	290	6.0						3.6
21	300	5.0						
22	300	4.8						
23	300	4.5						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 52

Bombay, India (19.0°N, 73.0°E) October 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	270	8.3						
08	300	9.6						3.2
09	360	10.2						
10	390	11.1						
11	390	12.5						
12	420	13.3						2.7
13	450	14.0						
14	460	(14.5)						
15	450	(14.8)						
16	(420)	(14.9)						2.7
17	390	(14.7)						
18	390	14.2						
19	360	13.7						
20	360	13.0						2.8
21	360	11.8						
22	330	10.4						(2.7)
23	330	9.8						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 53

Madras, India (13.0°N, 80.2°E) October 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	7.6						
08	360	9.5						(2.9)
09	420	10.8						
10	450	11.0						
11	480	10.6						
12	480	10.7						(2.5)
13	480	10.8						
14	480	11.4						
15	480	12.0						
16	480	12.9						(2.5)
17	480	13.1						
18	480	13.0						
19	460	12.6						
20	420	(12.1)						(2.6)
21	420	11.1						
22	(390)	10.6						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 54

Tiruchy, India (10.8°N, 78.8°E) October 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	** (M3000)F2
00								
01								
02								
03								
04								
05								
06	360	7.0						
07	390	8.2						
08	480	10.3						(2.5)
09	480	10.3						
10	510	10.2						
11	520	9.8						
12	540	10.2						(2.3)
13	540	10.1						
14	540	10.6						
15	540	10.8						
16	540	11.2						
17	540	11.1						(2.3)
18	540	10.8						
19	540	10.8						
20	540	10.4						
21	540	10.0						(2.4)
22	540	(9.8)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 55

Buenos Aires, Argentina (34.5°S, 58.5°W) October 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.4						2.9
01	300	7.2						2.9
02	280	7.5						3.0
03	230	6.5						3.2
04	250	5.6			---	---		3.0
05	270	5.7			---	---		3.0
06	230	6.9	---	---	110	---		3.3
07	240	7.6	210	---	110	2.8	3.4	3.4
08	260	8.1	220	---	110	3.2	3.8	3.2
09	290	9.4	220	---	---	---	4.4	3.1
10	300	10.1	230	---	---	---	4.6	3.0
11	300	11.2	220	---	---	---	5.0	3.0
12	300	12.0	220	---	---	---	4.8	3.0
13	300	12.9	220	---	---	---	4.4	3.0
14	300	13.4	230	---	---	---	4.0	3.1
15	290	13.6	240	---	---	---	3.8	3.1
16	270	13.6	230	---	---	---	3.6	3.2
17	260	13.4	240	---	---	---	3.0	3.3
18	240	13.4					2.8	3.4
19	220	(12.0)						(3.3)
20	230	(9.4)						(3.0)
21	290	(8.6)						(2.8)
22	300	(8.0)						(2.9)
23	310	7.4						2.9

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 56

Buenos Aires, Argentina (34.5°S, 58.5°W) September 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.8						2.9
01	300	5.6						2.9
02	270	5.6						3.0
03	260	5.0						3.0
04	280	4.5						3.0
05	290	4.2						3.0
06	240	5.8	---	---				3.2
07	230	6.4	---	---	---	---		3.4
08	250	(7.8)	230	---	---	(3.0)		(3.2)
09	260	8.5	230	---	---	---		3.3
10	280	9.0	230	---	---	---		3.3
11	290	10.5	210	---	---	---		3.1
12	290	11.5	210	---	---	---		3.2
13	290	11.2	220	---	---	---		3.2
14	280	11.3	220	---	---	---		3.2
15	270	11.1	230	---	---	---		3.2
16	260	10.8	240	---	---	---		3.2
17	250	10.0	---	---				3.3
18	230	10.0						3.3
19	210	8.9						3.3
20	240	8.0						3.0
21	260	7.0						3.0
22	270	6.6						3.0
23	300	6.0						2.9

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Form adopted June 1946

TABLE 57

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), May (Month), 1952

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by Mc C., A.C.K.

Calculated by Mc C., A.C.K., E.J.W., R.F.B.

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
(320)SK	340K	300K	<340EK	EK	310K	(420)LK	450K	GK	GK	GK	GK	GK	GK	GK	GK	460K	470K	360K	280K	270K	270K	300K	260
300	300	270	(400)S	[400]S	310	270	400	610H	830	570	460	450	370	360	350	300	340	290	270	240	250	280	280
(310)S	300	340	(400)S	(380)S	280	270	370K	GK	GK	GK	GK	GK	510K	410K	430K	400K	390K	320K	270K	(270)SK	300K	300K	(290)SK
SK	SK	330SK	300SK	EK	300K	LK	GK	GK	GK	GK	GK	GK	570K	560K	440K	370K	330K	320K	270K	260K	290K	300K	290K
330K	(350)SK	<380EK	EK	EK	290K	240K	LK	GK	GK	GK	GK	GK	600K	460K	370K	360K	340K	310K	240K	240K	240K	250K	270K
300K	300K	290K	330K	340K	300K	340K	(390)LK	GK	GK	GK	GK	GK	530K	460K	430K	(420)SK	360K	320K	260K	250K	250K	260K	280K
270K	(330)SK	340K	320K	300K	(250)AK	260HK	GK	GK	GK	GK	GK	GK	GK	560K	600K	610K	450K	360K	300K	250K	210K	(370)SK	330K
(370)SK	(370)SK	<400EK	EK	(400)SK	330K	270K	GK	GK	GK	GK	GK	GK	430	410H	370	380H	A	A	(260)A	(260)A	[260]A	270	270
(320)S	(320)S	[310]A	(310)A	[290]A	270	(300)L	A	630	G	G	G	520	680	470	430	380	350	310	A	A	250	220	280
(300)S	290	290	290	(300)S	270	(320)L	370H	600	430	390	410	460	450	400	370	320	320H	260	240	230	240	240	250
260	[290]A	(310)A	300	280	260	(260)L	300H	350H	300H	350	340	330	360H	320	310	310	300	270	260	240	270	260	260
260	250	210	260	290	250	(340)L	330	440H	450H	450	530	470	A	A	A	340	340	290	(270)A	240	(270)A	270	270
280	260	240	(290)S	320	260	(360)L	420	[490]S	540	570	550	430	500	530	440	520	320	280	270	250	250	260	260
260	280	260	270	(280)A	(270)A	(360)L	330	400	400	370	470H	360H	390H	380	350	330	300	(270)A	240	220	[270]A	[270]A	(300)A
280	280	270	250	250	240	250	[370]A	300	320	[310]A	300	340	320	350	310	300	280	260	230	A	A	A	A
A	A	270	280	270	250H	250H	310H	300H	310	340	330	330H	350H	300	350	360	300	270	240	220	240	250	260
270	290	[310]A	(300)A	300	240	300	320H	260	280	310	360	330	320	330	310	330	300	270	270	250	290	270	250
230	260	290	300	300	270	570	470	400	390	G	A	G	550	440	400	370	360	280	240	230	280	290	270
290	270	270	240	[260]S	280	(290)L	430	430	320	440	550H	560	[470]A	380	430	380	[340]A	(290)A	240	250	260	280	290
270	230	260	290	(310)A	[270]A	(300)H	310	340H	300	460	430	410H	360	370H	380H	370H	330	290H	240	230	250	250	270
260	260	270	[280]A	(290)A	270	(680)G	400	300H	570	620	470	G	560	500	430	490	320	300	270	250	260	260	260
260	250	240	240	240	250	260	280	350H	330H	360	310	310	440	350	350	350	330	290	250	230	240	230	250
[280]A	260	260	270	260	240	250	330	290H	290H	350	300	310H	300	340	330	300	300	290	250	240	220	(250)A	250
270	250	270	260	250	250	[300]L	360	430	360	360	320	420H	360	370	340H	310	330	280	270	250	270	250	240
230	240	240	250	(330)S	270	340	530	450	370	420H	430	400	(360)A	340H	340	310	290	270	240	[250]A	280	270	270
250	280	[270]A	260	(300)S	270	(550)L	400	390	350H	400	380	410K	360K	380K	330HK	320K	330HK	310K	280K	330K	370K	380K	320K
(320)SK	(300)SK	[370]AK	(350)AK	(330)AK	270K	GK	GK	GK	GK	GK	GK	(560)SK	550K	490K	400K	380K	310K	310K	250K	210K	220K	250K	300K
AK	AK	(240)AK	AK	AK	260K	320K	GK	GK	GK	GK	AK	(700)A	460	[390]A	400	330	320	270	230	280	250	280	270
280	290	300	310	(320)S	270	(400)L	(450)S	370	G	G	G	G	570	440	420	340	360	310	250	250	270	280	290
270	270	270	250	300	240	G	420	420H	510	500H	460H	450	350	420	340	310	300	280	260	240	250	240	250
250	270	260	260	250	250	460H	420H	(640)A	440H	430H	400H	400H	[400]A	350	360	340	320	280	250	210	220	230	240
280	280	270	290	300	270	310	400	440	450	500	470	460	440	400	370	350	330	290	250	250	260	270	270
28	28	29	29	30	31	30	29	31	31	31	29	31	30	30	30	31	30	30	30	29	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702310

TABLE 58

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

o F2 (Characteristic), Mc (Unit), May (Month), 1952

National Bureau of Standards (Institution)

erved at Washington, D.C.

Scaled by: Mc C., A.C.K.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: Mc C., A.C.K., E.J.W., R.F.B.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	2.6 FK	(2.2) FK	K(1.9) SF	(1.5) SK	<1.0 EK	2.4 K	3.2 K	3.7 K	<3.9 GK	<38 GK	<39 GK	<4.0 GK	<41 GK	<41 GK	<40 GK	K<39 GH	4.2 K	4.2 K	4.2 K	4.2 K	4.4 K	3.5 K	3.4 K	(32) S
	3.0	2.9 F	2.5 F	(1.7) FS	[1.6] FS	2.4	3.3	3.8	4.2 H	4.4	4.6	4.9	5.0	5.5	5.7	6.5	6.2	5.7	6.5	6.6	5.2	5.1	3.8	3.1
	2.9 F	(2.6) F	(2.3) F	[1.8] SF	(1.8) SF	2.4	3.3	3.9 K	<39 GK	<4.0 GK	K<(4.1) GP	K<4.1 GH	<41 GK	4.6 K	5.0 K	5.1 K	5.0 K	5.5 K	6.3 K	(4.3) SK	3.8 FK	K(35) SF	K(31) SF	K(2.4) SF
	K(2.0) FS	[2.2] SK	(2.3) FK	K(2.0) SF	<1.0 EK	2.4 K	3.4 K	<3.7 GK	K<3.9 GH	<4.0 GK	K<4.1 GH	<4.1 GK	K<4.1 GH	4.4 K	4.5 K	4.9 K	5.3 K	5.4 K	5.5 K	5.0 K	4.4 K	3.4 FK	3.1 K	2.7 FK
	2.0 K	1.7 K	1.4 K	<1.0 EK	<1.0 EK	2.3 FK	(3.4) SK	3.8 K	K<3.8 GH	<4.0 GK	K<4.1 GH	K<4.2 GH	K<4.2 GH	4.5 K	4.9 K	5.1 K	5.2 K	5.4 K	6.0 K	6.8 K	6.2 K	4.7 K	3.9 K	3.3 K
	2.9 K	2.9 K	2.5 K	(2.2) FK	(2.2) FK	2.4 FK	3.7 K	3.7 K	<3.8 GK	K<4.0 GH	K<4.1 GH	<4.1 GK	K<4.3 GH	4.7 K	5.0 K	4.7 K	K4.7 JS	4.7 K	4.7 K	5.0 K	(5.2) SK	4.7 K	(4.2) SK	K3.6 JS
	3.2 K	K(2.7) HS	.8 FK	K(2.2) FS	K(2.7) FS	K(2.4) FS	K3.0 HF	<3.5 GK	<3.6 GK	<3.8 GK	K<4.0 GH	K<4.0 GH	K<4.0 GH	K<4.1 GH	4.4 K	4.3 K	4.3 K	4.3 K	4.6 K	5.6 K	6.0 K	4.0 K	2.7 FK	2.9 K
	(.2) SK	1.7 K	(1.4) SK	<1.0 EK	(1.8) FK	2.4 K	3.1 K	K<3.4 GH	<3.7 GK	<4.0 GK	K<4.0 GA	<4.1 GK	<4.2 GK	4.8	4.9 H	5.0	5.0 H	(5.0) A	5.1	5.0	4.7	4.3	3.6	3.0
	2.3 F	2.1 F	1.9 F	(1.7) A	[1.6] A	2.5	3.7	4.0 AS	4.1	K<4.0 GH	<4.1 G	<4.2 G	4.5	4.4	4.6	4.8	4.9	4.9	5.0	[5.0] A	4.8	3.7	3.0	2.5
	2.3	2.2	1.9	1.8	1.8	2.5	(3.6) S	4.3 H	4.1	4.5	4.6	4.9	4.8	4.8	5.0	5.0	5.4	5.4 H	5.2	5.1	4.8	4.1	3.5	3.1
	.6	2.2	2.1	1.9	1.8	2.1	4.2	4.7 H	5.0 H	5.8 H	5.5	6.0	6.0	6.3 H	6.3	6.6	6.2	6.8	7.0	6.8	6.3	5.4	5.1	4.5
	4.5	4.2	3.5	2.6	1.4	2.8	4.2	4.8	4.7 H	4.7 H	5.0	4.6	4.8	A	A	A	4.9	4.8	4.7	4.6	4.6	3.8	3.5	3.2
	2.9	2.7	2.3	1.9	1.7	2.6	3.6	3.9	[4.1] S	4.2	4.3	4.3	4.6	4.5	4.5	4.7	4.5	5.4	(5.4) A	5.1	5.3	4.7	4.0	3.7
	3.5	2.9	2.5	2.4 F	2.0	2.8	3.7	4.3	4.5	4.6	4.8	4.9 H	5.1 H	5.1 H	5.2	5.1	5.2	5.3	5.2	5.4	5.2	[4.3] A	3.7	3.4
	3.2	3.1	3.0	2.7	2.3	3.1	3.7	(4.3) A	5.4	5.7	[5.8] A	6.0	5.8	5.9	5.8	6.3	6.1	6.4	6.4	6.3	(5.7) A	A	A	A
	(3.1) A	[3.1] A	(3.1) FA	2.9 F	2.6	3.1 H	4.2 H	4.8 H	5.3 H	5.4	5.6	6.0	6.0 H	5.9 H	6.2	5.8	6.0	6.3	6.9	7.2	6.6	4.9	4.1	3.9
	3.7	3.4	[3.1] A	2.9	2.7 F	3.2	4.2	4.5 H	6.3	5.7	6.0	5.8	5.8	6.1	6.0	5.9	5.8	6.3	6.7	7.0	6.8	5.8	5.2	5.4
	4.8	3.2	2.7	2.2	1.7	2.8	3.4	3.9	4.4	4.7	<4.2 G	[4.6] A	<4.2 G	4.6	5.0	5.0	5.1	5.2 H	5.7	5.6	4.6	3.6 F	3.3 F	(3.1) F
	3.0	2.7	2.4	2.3	(1.4) SS	2.8	3.8	4.4	4.6 F	5.0	4.7	4.5 H	4.6	5.0 AS	5.0	5.0	5.0	[5.2] A	(5.4) A	5.4	5.0	4.2	3.7	3.6
	3.6	3.0	2.5 F	2.4 F	2.0 F	[3.1] A	4.0	4.7	(5.2) H	5.4	4.9	5.0	5.3 H	5.3	5.1 H	5.1 H	5.1 H	5.4	5.8 H	(6.3) SP	5.6 F	4.7 F	(4.0) F	(3.4) F
	(3.5) F	3.0 F	2.9 F	(2.7) A	(2.4) F	2.7	(3.3) B	4.2	5.0 H	4.3	4.5	4.7	<4.2 G	4.7	4.6	4.7	4.9	5.2	5.1	5.3	5.7	5.2	4.4	4.3
	4.0	3.5	3.3	3.0	2.8	3.5	4.6	5.1	5.0 H	5.3 H	5.3	6.1	6.0	5.2	5.4	5.4	5.3	5.2	5.3	5.7	6.2	5.4	4.6	3.7
	3.3 F	3.5 F	3.1	3.0	3.0	3.5	4.2	5.0	(5.8) H	5.6 H	5.7	6.2	6.7 H	6.2	6.4	6.3	6.2	5.8	6.2	6.8	7.2	5.7	5.4	4.7
	4.2	4.0	3.2	2.9	2.8	3.2	(3.7) S	4.5	4.5	5.2	5.6	6.1	5.8 H	5.8	5.7 S	5.9 H	6.1	5.6	6.0	(6.9) S	7.0	6.4 Z	5.8	5.2 F
	4.0	3.8	3.0	2.3	1.8	3.0	4.1	4.1	4.5	4.7	4.8 H	4.9	(5.3) A	5.6	5.8 H	5.8	6.0	6.4	6.4	6.0	(5.4) S	(4.8) S	(4.5) S	4.6
	4.2 S	4.1 F	[3.4] A	2.5 F	(2.2) F	3.0	(3.7) S	4.6	4.7	5.4 H	5.5	5.4	5.6 K	6.1 K	6.2 K	6.6 HK	7.0 K	7.4 HK	8.2 K	(7.8) SK	(5.2) FK	2.7 K	(2.0) FK	(2.6) FK
	(2.3) FK	(1.6) FK	[1.6] AK	(2.2) FK	(2.0) EK	2.6 K	<3.6 GK	<3.5 GK	<3.8 GK	K<3.9 GS	<4.0 GK	<4.1 GK	4.4 K	4.6 K	4.7 K	5.3 K	5.9 K	6.6 K	6.6 K	8.6 K	(6.2) SK	4.5 K	3.5 K	(3.0) FK
	A K	A K	2.3 K	A K	A K	2.7 FK	3.8 K	<3.8 GK	<4.0 GK	<4.1 GK	<4.1 GK	[4.4] AK	(4.7) A	5.2	[5.4] A	5.4	6.2	6.6	6.8	6.4	4.8	4.5	4.2	4.0
	3.3	3.4	3.0	(2.2) F	(2.1) F	2.7 F	(3.7) S	(4.0) S	4.4	<4.1 G	<4.1 G	<4.2 G	<4.3 G	4.7	5.0	5.0	5.3	5.1	5.5	5.0	4.7	4.4	4.0	3.6
	3.3 F	3.1 F	3.0 F	(2.5) F	1.8 F	2.9	<3.5 G	4.1	4.5 H	4.4	4.6 H	4.9 H	5.0	5.5	5.4	5.7	5.8	5.8	6.0	5.9	6.0	5.7	4.9	4.7
	3.8	3.5	3.3	3.0	2.4	2.8	3.7 H	4.2 H	(4.4) A	4.5 H	4.8 H	5.1 H	5.1 H	[5.4] A	5.5	5.5	5.8	6.1	6.4	6.8	6.5	5.4	4.8	4.4
n	3.2	3.0	2.5	2.2	2.0	2.8	3.7	4.1	4.4	4.5	4.6	4.7	4.8	5.0	5.0	5.1	5.3	5.4	5.8	5.7	5.3	4.6	4.0	3.5
	30	30	31	30	30	31	31	31	31	31	31	31	31	30	30	30	31	31	31	31	31	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 59

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Form adopted June 1946

foF2 (Characteristic), Mc (Unit), May (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: Mc C., A.C.K.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: Mc C., A.C.K., E.J.W., R.F.B.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330		
1	(2.4)FK	(2.0)FK	K[1.5]FS	(1.3)FK	(1.8)FK	2.7K	<3.4GK	3.8K	<3.8GK	<3.8GK	<4.0GK	<4.1GK	<4.1GK	<4.0GK	<4.0GK	4.1K	4.1K	4.2K	4.1K	4.3K	3.8K	(3.4)SK	K(3.4)FS	(3.1)F		
2	2.9F	(3.0)F	1.7F	[1.6]F	(1.4)SS	2.8	3.5	3.7	4.4H	4.4	4.7	5.2	5.2	5.9	5.7	6.5	5.9	6.0	6.6	6.3	4.9	3.9	3.5	3.0F		
3	2.6F	(2.3)F	(2.2)SS	(1.5)FS	(1.7)FS	2.9	3.7	<3.8GK	<3.9GK	<4.0GK	<4.1GK	<4.1GK	4.3K	(4.6)SK	4.8K	5.0K	5.1K	6.2HK	5.7K	4.2K	K(3.5)FS	[3.3]CK	[2.8]CK	[2.2]CK		
4	[2.1]SK	(2.4)SK	(2.4)SK	SK	<1.0EA	(3.1)PK	CK	CK	<(3.9)GK	K<4.0GS	<4.1GK	<4.1GK	4.2K	4.5K	4.8K	5.2K	5.4K	5.3K	5.3K	4.6K	3.7K	(2.8)SA	2.9FA	2.3FK		
5	(1.7)SK	K1.5SS	1.3K	<1.0EK	<1.0EA	3.0K	3.7K	<3.6GK	<4.0GK	<4.1GK	<4.1GK	K(4.2)SG	4.5K	4.5K	5.0K	5.2K	5.1K	5.6K	6.8K	6.5K	5.3K	4.6K	(3.5)SA	3.1K		
6	2.9K	2.7K	[2.3]FK	[2.2]FK	(2.2)FK	2.9K	(3.8)SS	<3.7GK	<3.9GK	<4.0GK	<4.1GK	<4.2GK	<4.3GK	4.7K	4.8K	4.8K	4.8K	4.7K	4.8K	5.0K	K4.8SS	4.4K	3.5K	3.4K		
7	(3.5)SK	K2.3SF	(2.5)FK	(2.6)SK	(2.1)FK	3.2FK	3.3K	<3.5GK	<3.7GK	<4.0GK	H(4.0)GK	K<4.0HG	<4.0GK	4.4K	4.3K	4.2K	4.3K	4.4K	4.4HK	(5.2)SK	5.2K	3.0K	2.5K	(2.6)SK		
8	(1.8)SK	(1.5)SK	[1.4]SK	<1.0EK	K1.8SF	2.7K	3.3K	<3.7GK	<3.9GK	<4.0GK	K[4.0]GA	<4.1GK	[4.5]AK	4.7	4.9H	5.1	5.0	(5.0)A	4.9	4.9	4.5	3.9	3.2	2.5F		
9	2.3F	(2.1)F	[1.8]A	[1.6]A	1.6F	3.1	3.9H	4.2	4.1	<4.1G	<4.1G	4.5	(4.5)B	4.5	4.7	4.8	5.0	5.0	[5.0]A	5.0	4.2	3.4	2.8	2.3		
10	2.2	2.1	(1.9)S	(1.8)S	(1.9)S	3.3	(3.9)S	4.1H	4.2	4.6	4.6	4.8	4.7	4.8	5.1	5.3	5.4	5.4H	5.2	4.7	4.5	3.7	3.2	2.9		
11	2.4	2.1	2.0	2.0	2.1	3.7	4.5	4.8H	5.5	5.7	5.7	5.9	5.9	6.3	6.2	6.5	6.5	7.3	6.9	6.9	5.6	5.5	4.8	4.6		
12	4.5	3.9	2.5	2.5	2.2	3.5	4.5	4.7	5.0H	4.7	4.9H	4.7	5.0H	A	A	5.1	4.8	4.9	4.7	4.7	4.1	3.7	3.3	3.0		
13	2.8	2.6	2.1	1.6	1.9	3.1	3.7H	4.2	4.1	<4.0G	4.5	4.5	4.6	4.4	4.6	4.7	5.0	5.5	(5.0)A	5.2	5.0	4.4	3.9	3.7		
14	3.1	2.9	2.5	2.1	(2.3)A	3.3	(4.1)A	4.2	4.5H	5.0	4.5H	4.9	5.1H	5.1	5.1	5.0	5.4	5.3	5.2	5.3	4.6	3.8	3.5	3.3		
15	3.2	3.0	2.8	2.5	2.4	3.5	(4.0)A	4.7	(5.4)A	(5.7)A	(5.9)A	5.7	5.7	5.8	6.3	6.2	6.2	6.4	6.6	6.0	A	A	A	(3.5)AF		
16	3.1	(3.1)AF	3.0F	(2.5)AS	2.8F	3.7H	4.4H	5.3H	5.2H	5.8	6.4	6.0	6.1H	6.2	5.8	5.8	6.2	6.4	7.0	7.0	5.8	4.4	4.1	3.8		
17	3.5	3.2	3.0	2.9	2.8	3.8	4.3	4.7	6.2	5.8	5.8H	6.0	5.9	6.1	6.0	5.8	6.0	6.6	6.7	7.2	6.6	5.4	5.5	5.1		
18	3.9	2.7	2.4	2.0	2.1	(3.2)SJ	3.7	4.1	4.5	4.6	4.6	4.5	4.9	5.0	5.1	5.1	5.3	5.4	5.8	5.2	4.0	3.4F	3.2F	3.2F		
19	2.7	2.5	2.3	2.0H	[2.0]A	3.5	4.0	4.4	5.1	4.7	4.5	4.5	4.7	[5.0]A	4.9	5.0	(4.9)A	[5.3]A	5.5	5.3	4.6	3.9	3.7	3.5		
20	3.4	2.8	2.4F	2.1F	[2.6]A	3.6	4.3	5.1	4.8	4.7	5.2	5.2	5.2	5.3	5.1	5.2	5.1	5.5	6.0	6.2F	(5.0)F	4.1F	3.7F	(3.7)F		
21	3.1F	2.8F	2.8F	2.5F	2.2F	3.0	3.6	4.7	4.7	4.5	[4.5]A	4.7	4.6	4.5	4.8	4.8	5.0	5.2	5.2	5.5	5.4	4.8	4.5	4.2		
22	3.8	3.5	3.1	3.0	2.9	4.2	4.6H	5.1	5.2	5.4H	5.6	6.2	5.4H	5.4	5.4	5.4	5.2	5.3	5.5	5.8	5.9	5.0	4.2	3.4F		
23	(3.4)F	3.2	3.1	3.0	3.1	4.1	4.4	5.5	6.0	6.0	6.2H	6.6	6.1	6.2	6.3	6.5	6.1	5.8	6.4	7.2	(7.0)S	5.8	4.9	4.5		
24	4.2	3.5	3.0	2.8H	2.8H	3.7	4.2	4.5	5.0H	5.3	5.9	5.9	6.0	5.9	5.8H	5.9	5.8	6.0	6.0	6.6	6.5	(6.4)S	5.6	5.1		
25	3.8	3.3	2.6	1.8	2.3	3.4	4.5	4.4	4.7H	4.8H	5.1	[5.1]A	5.4	5.9H	5.7H	5.8	6.1	6.4	6.4	(5.8)S	4.9	4.7	(4.3)S	4.5		
26	3.9F	(3.8)F	(2.9)A	(2.5)F	(2.5)SF	3.2	4.1	4.8	5.2H	5.5	5.6	5.4	5.8K	6.4K	6.4K	6.6K	7.2K	7.4K	8.7K	K(6.4)ZS	(3.6)FK	(2.3)FK	(3.1)FK	(2.2)FK		
27	(2.4)FK	[1.6]AK	1.6K	(2.1)FK	(2.2)FK	2.9K	<3.3GK	<3.6GK	<3.8GK	<4.0GK	<4.0GK	4.4K	<4.3GK	4.7K	4.8K	5.3K	6.6K	6.6K	7.2K	(7.6)SK	5.5K	3.6K	3.0K	(3.1)AK		
28	AK	AK	AK	AK	2.1K	3.4K	3.8K	<3.8GK	<4.1GK	<4.1GK	[4.4]AK	4.7K	4.9	5.2	5.3	5.6	6.2	7.0	6.9	4.8	5.4	4.6	4.2	(3.6)J		
29	3.2	3.0	(2.8)F	(2.1)F	(2.2)F	3.3	4.0H	(4.3)S	(4.3)S	<4.1G	<4.2G	4.5	4.4	4.8	5.1	5.2	5.2	5.3	5.4	4.7	4.5	4.3	3.7	3.7		
30	3.1F	3.0	(2.8)F	2.1F	(2.1)F	3.1	3.7	4.5H	(4.3)P	4.5	4.9H	5.0H	5.3	5.4	5.5	5.6	5.7	5.9	5.6	5.8	5.8	5.4	5.1	4.3		
31	3.6	3.5	3.1	2.6	2.5	3.2	4.1	4.5H	4.5H	4.7H	4.9H	5.2H	5.1	5.7	5.6	5.6	6.0	6.3	6.7	6.8	6.0	5.2	4.5	4.3		
Median	3.1	2.8	2.4	2.1	2.2	3.2	4.0	4.4	4.5	4.6	4.6	4.7	4.9	5.0	5.1	5.2	5.4	5.5	5.7	5.5	5.0	4.2	3.6	3.4		
Count	30	30	30	29	31	31	30	30	31	31	31	31	31	30	30	31	31	31	31	31	30	30	30	31		

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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TABLE 60

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), May (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: McC., A.C.K.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							260 K	230 K	220 K	200 K	190 K	180 K	180 HK	200 HK	210 K	210 HK	220 K	250 K	260 K					
2							Q	250	230	190 H	200 H	190	200	180	200	230	220	220	260					
3							Q	230 K	210 K	200 K	200 K	190 HK	200 K	190 HK	230 K	230 K	230 K	240 HK	250 K					
4							230 K	210 HK	210 HK	190 K	180 HK	180 K	180 HK	210 K	210 HK	230 K	230 K	240 K	250 K					
5							Q K	230 K	200 NK	200 K	190 HK	200 HK	190 HK	190 HK	220 K	240 K	220 K	218 K	250 K					
6							250 K	220 K	210 K	200 HK	180 HK	180 K	190 HK	200 K	210 HK	210 K	230 K	240 K	250 K					
7							Q K	230 K	200 K	200 HK	200 HK	180 HK	200 HK	190 HK	230 K	220 K	220 K	240 K	260 K					
8							Q K	230 HK	220 K	210 K	[200] HK	200 K	210 K	(210) A	220	220	230 H	A	A					
9							250	[230] A	210	200 H	190	170 H	200	200 H	220 H	220	220	220	250					
10							230	200 H	200	200	190 H	190 A	180 H	200 H	180 H	200 H	210	210	220	240				
11							220	200	200 H	190 H	180 H	190 H	190	200	200	220	200	240	230	Q				
12							260	220	230	200 H	200	180 H	A	A	A	A	200 H	230	A	A				
13							230	[220] A	200	210	210	190	200	200	200 H	200	210	A	A	A				
14							A	A	200	200	190	200	200	220	200 H	220	[230] A	A	A	A				
15							A	A	A	(230) A	A	A	A	(210) A	180	200	230	210	230	Q				
16							200	[210] A	220	200 H	200 H	(190) A	180 H	180	210 H	210	200 H	250	A	Q				
17							230	210	200	200	200	180	180 H	180 H	200	200	230	220	250	Q				
18							250	240	210	[illegible] H	200 H	[200] A	210	230	220 H	230	230	230	250	Q				
19							250	230	210	200	200	210	210	A	A	A	(210) A	A	A	A				
20							A	230	(210) A	[illegible]	(210) A	200	200	210	210 H	210	210 H	A	A	A				
21							220	200	220	[illegible]	180 H	(190) H	210	200	210	220	230	240	A	A				
22							240	230	200 H	190	190	190 H	220	A	A	220	210	210	A	A				
23							220	210	210	(200) H	[200] A	200	[illegible]	[illegible] H	200	[illegible]	210	220	230	Q				
24							220	220	210	[illegible]	200 H	190	180 H	200 H	210 H	[illegible]	200	220	240	240				
25							230	200	200 H	[illegible]	180 H	(200) A	(220) A	[210] A	200	[illegible]	210 H	210 H	230	A				
26							240	210 H	210	[illegible]	(200)	190 H	(220) AK	(220) AK	220 K	210 K	220 K	210 HK	250 K	270 K				
27							240 K	210 K	210 K	[illegible]	[illegible]	210 K	[illegible] HK	220 K	200 HK	210 HK	220 K	220 K	250 K	[illegible] K				
28							250 K	220 K	200 K	[illegible]	200 HK	[210] AK	220	(210) A	[210] A	210	220	230	[illegible]	230				
29							230	210	190 H	[illegible] K	[illegible] H	200	200	200	220	220	210	230	240	Q				
30							240	210	210	[illegible]	[illegible] H	A	A	A	A	A	A	220	230	250				
31							220	210 H	[200] A	[illegible]	190 K	190 H	190	[200] A	200	200	190 H	230	230	210				
Median							230	220	210	[illegible]	200	190	200	200	210	210	220	220	250	240				
Count							23	29	30	31	30	27	28	27	27	28	30	26	22	7				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 61

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), May (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							(3.1) LK	3.5 K	3.9 K	3.8 K	3.9 K	4.0 K	4.1 H	4.1 HK	4.0 K	3.9 HK	3.7 K	3.4 K	3.1 K					
2							Q	3.5	3.7	4.0 H	4.2 H	4.3	4.4	4.3	4.3	4.1	3.9	3.7	L					
3							Q	3.6 K	3.9 K	4.0 K	(4.1) PK	4.1 HK	4.1 K	4.1 HK	4.1 K	4.0 K	3.8 K	3.5 HK	3.1 K					
4							L K	3.7 HK	3.9 HK	4.0 K	4.1 HK	4.1 K	4.1 HK	4.2 K	4.1 HK	4.0 K	3.9 K	3.6 K	3.3 K					
5							Q K	3.6 K	3.8 HK	4.0 K	4.1 HK	4.2 HK	4.2 HK	4.2 HK	4.2 K	4.0 K	3.9 K	3.6 K	3.2 K					
6							3.1 K	[3.5] LK	3.8 K	4.0 HK	4.1 HK	4.1 K	4.3 HK	4.2 K	4.2 HK	4.1 K	4.0 K	3.7 K	L K					
7							Q K	3.5 K	3.6 K	3.8 HK	4.0 HK	4.0 HK	4.0 HK	4.1 HK	4.1 K	3.9 K	3.8 K	3.6 K	3.2 K					
8							Q K	3.4 HK	3.7 K	4.0 K	[4.0] AK	4.1 K	4.2 K	4.3	4.2	4.1	4.0 H	A	A					
9							L	A	3.9	4.0 H	4.1	4.2 H	4.2	4.2 H	4.1 H	4.1	4.0	3.7	3.2					
10							L	3.7 H	3.9	4.0	4.2 H	4.3 H	4.3 H	4.3 H	4.2 H	4.1	3.9	3.7	L	L				
11							L	L	4.1 H	4.2 H	4.3 H	4.4 H	4.4	4.3	4.3	4.2	4.0	3.7	L	Q				
12							L	3.7	3.9	4.0 H	4.1	4.2 H	4.2	A	A	A	3.8 H	3.6	A	A				
13							L	3.5	3.8	3.9	4.0	4.1	4.2	4.2	4.2 H	4.0	3.8	3.6	A	A				
14							L	A	3.9	4.0	4.2	4.3	4.3	4.3	4.2 H	4.1	[4.0] A	3.7	A	A				
15							A	(3.8) A	(3.9) A	4.2	A	A	A	4.3	4.3	4.2	4.0	3.7	L	Q				
16							L	A	4.1	4.2 H	4.5 H	4.4 H	4.5 H	4.3	4.2 H	4.2	4.1 H	3.7	A	Q				
17							L	3.7	3.9	4.2 H	4.3	4.4	4.4 H	4.4 H	4.3	4.1	4.0	3.7	L	Q				
18							3.1	3.5	3.7	4.0 H	4.2 H	[4.2] A	4.2	4.2	4.1 H	4.1	3.9	3.7	3.2	Q				
19							L	3.6	3.8	4.0	4.1	4.2	4.2	A	A	(4.1) A	(4.0) A	A	A	A				
20							A	3.7	4.0	4.2	4.2	4.3	4.4	4.3	4.2 H	4.1	3.9 H	3.7	A	A				
21							3.1	3.5	4.0	4.1	4.1 H	4.2	4.2	4.2	4.2	4.1	4.0	3.8	(3.3) A	A				
22							L	L	4.2 H	4.2	4.3	4.4 H	4.4	4.5	4.4	4.2	4.1	3.9	A	A				
23							L	3.8	4.1	4.2	[4.4] A	4.4	4.4	4.5 H	4.5	4.3	4.2	3.9	3.5	Q				
24							(3.6) L	3.8	4.0	4.1	4.3 A	4.4	4.4 H	4.5 H	4.3 H	4.2	4.0	3.8	L	L				
25							3.3	3.7	3.9 H	4.0	4.2 H	4.5	(4.4) A	[4.4] A	4.3	4.2	4.1 H	3.9 H	L	A				
26							3.5	3.9 H	4.1	4.2	4.3	4.4 H	4.5 K	4.5 K	4.4 K	4.2 K	4.0 K	3.7 HK	3.3 K	L K				
27							3.0 K	3.5 K	3.8 K	3.9 SK	4.0 K	4.1 K	4.1 HK	4.3 K	4.2 HK	4.1 HK	3.9 K	3.8 K	L K	L K				
28							3.3 K	3.8 K	4.0 K	4.1 K	4.1 HK	[4.2] AK	4.3	4.4	[4.2] A	4.1	4.0	3.8	3.4	L				
29							(3.3) L	3.6	3.9 H	4.1 H	4.1 H	4.2	4.3	4.2	4.2	4.1	4.0	3.7	3.4	Q				
30							3.5	3.6	3.9	4.1	4.2 H	A	A	A	A	A	4.1	3.5	3.3	L				
31							3.4	3.7 H	4.1 H	4.1 H	4.2 H	4.4 H	4.4	[4.4] A	4.4	4.3	4.2 H	3.9	3.4	L				
Median							3.3	3.6	3.9	4.0	4.2	4.2	4.3	4.3	4.2	4.1	4.0	3.7	3.3	–				
Count							12	26	31	31	30	29	29	28	28	29	31	29	14					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 62

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), May (Month), 1952

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							120^{K}	110^{K}	110^{K}	110^{K}	100^{K}	100^{K}	100^{K}	100^{K}	110^{K}	100^{K}	110^{K}	110^{K}	120^{K}					
2							120	110^{H}	110	100	110	100	100	110	110	110	110	110	120					
3							120	110^{K}	110^{K}	110^{K}	110^{K}	110^{K}	110^{K}	100^{K}	110^{K}	110^{K}	110^{K}	120^{K}	120^{K}					
4						120^{K}	C^{K}	C^{K}	110^{K}	100^{K}	110^{K}	110^{K}	100^{K}	110^{K}	110^{K}	110^{K}	110^{K}	120^{K}	120^{K}					
5						110^{K}	120^{K}	120^{K}	120^{K}	120^{K}	110^{K}	110^{H}K	110^{H}K	110^{K}	100^{K}	110^{K}	110^{K}	110^{K}	120^{H}K					
6							110^{K}	110^{K}	110^{K}	110^{K}	110^{K}	100^{K}	110^{K}	110^{K}	110^{K}	110^{K}	$(110)^{A}$K	110^{H}K	110^{K}					
7							120^{H}K	110^{H}K	110^{K}	110^{K}	110^{K}	100^{K}	100^{K}	100^{K}	100^{K}	110^{K}	110^{K}	110^{K}	120^{H}K	120^{K}				
8							110^{K}	110^{K}	100^{K}	110^{K}	110^{K}	100^{K}	110^{K}	100	100	100	110	110	120	A				
9							110	110	110	110	110	110	110	110	110	110	110	110	A	A				
10							110	110	110	110	110	110	100	100^{H}	100	100	100	110	110	110				
11						140	110	110	110	110	100	110	110	100	110	110	110	110	120^{H}	140				
12						140	120	110	110	110	100	110	100	100	100	100	110	110^{H}	120	A				
13						130	120	110	110	100	100	110	120	100	100	100	110	110	120	A				
14						S	120	110	100	100	100	100	100	100	100	100	110	110	110	110				
15						120	120	110	100	100	100	100	100	100	100	110	110	110	110	110				
16						110	110	110	100	100	100	100	100	100	100	110	110	110	110	120				
17						S	110	110	100	100	100	100	100	100	100	100	110	110	120	120				
18						120	110	110	100	100	100	100	100	100	110	100	110	110	110	120				
19						120	110	110	100	100	100	100	100	100	100	100	100	100	110	120				
20						A	110	110	100	100	100	100	100	100	100	100	100	110	110	110				
21						120	110	100	100	100	100	100	100	100	100	100	110	110	110	120				
22						110	$[110]^{A}$	110	100	100	100	100	100	100	100	100	100	100	110	A				
23						$(120)^{S}$	110^{H}	110	100	100	100	100	100	100	100	100	100	110	110	120				
24						$(110)^{S}$	110	110	100	100	100	100	110	100	100	100	110	110	110	120				
25						110	110	100	100	100	100	100	100	100	100	110	110	110	120	120				
26						110	110	110	100	100	100	100	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	110^{K}	110^{K}	140^{K}				
27						$(110)^{S}$K	110^{K}	110^{K}	110^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	100^{K}	110^{K}	110^{K}	110^{K}	$(120)^{S}$K				
28						110^{K}	110^{K}	110^{K}	100^{K}	100^{K}	100^{K}	100^{K}	110	100	100	100	100	110	110	$(130)^{S}$				
29						$(120)^{S}$	120	110	100	100	100	100	100	110	110	110	110	110	110	130				
30						120	100	100	100	100	100	100	100	100	100	100	100	100	110	$(130)^{S}$				
31						110	110	100	100	100	100	100	100	100	100	100	100	100	110	110				
Median						120	110	110	100	100	100	100	100	100	100	100	110	110	110	120				
Count						20	30	30	31	31	31	31	31	31	31	31	31	31	30	20				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 63

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), May (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							2.0^K	2.5^K	2.7^K	2.9^K	3.1^K	(3.2)^P_K	(3.2)^P_K	3.2^K	3.1^K	3.0^K	2.8^K	2.4^K	1.9^K					
2							2.0	2.4^H	2.8	(3.0)^P	A	A	3.2	(3.1)^P	3.1	3.0	2.8	2.5	2.1					
3							2.0	2.4^K	(2.8)^P_K	3.0^K	(3.1)^P_K	3.1^K	3.2^K	A^K	A^K	A^K	2.8^K	2.4^K	2.0^K					
4						1.5^K	C^K	C^K	(2.8)^P_K	3.0^K	(3.1)^P_K	(3.2)^P_K	(3.3)^P_K	3.3^K	3.2^K	3.0^K	2.8^K	2.4^K	2.1^H_K					
5						S^K	1.9^K	(2.5)^P_K	2.7^K	(2.9)^P_K	3.0^K	(3.2)^H_K	3.3^H_K	3.2^K	3.1^K	3.0^K	2.8^K	2.5^K	2.1^H_K					
6							2.0^K	2.5^K	(2.7)^P_K	A^K	A^K	3.2^K	3.3^K	3.2^K	3.2^K	3.0^K	[2.7]^A_K	2.4^H_K	2.0^K					
7							(2.0)^H_K	2.5^H_K	2.7^K	[2.8]^A_K	3.0^K	3.1^K	(3.2)^P_K	(3.2)^P_K	3.1^K	3.0^K	2.8^K	2.5^K	2.1^H_K	S^K				
8							2.0^K	2.3^K	(2.6)^A_K	2.9^K	3.0^K	(3.1)^P_K	A^K	A	3.2	3.0	2.9	2.5	2.0	A				
9							1.8	2.4	2.7	2.9	3.0	[3.2]^A	(3.3)^P	A	A	A	2.9	2.5	A	A				
10							A	2.4	A	A	3.1	3.2	3.3	3.3^H	3.2	3.1	(2.8)^P	A	A	A				
11						1.4	[1.9]^A	2.4	2.7	[2.9]^A	3.1	A	A	3.3	3.1	3.0	[2.8]^A	2.5	2.1^H	S				
12						S	2.0	2.5	[2.8]^A	3.0	3.2	3.3	A	A	A	A	2.8	2.5^H	2.0	A				
13						S	1.9	2.4	2.8	3.0	[3.1]^A	3.2	3.2	3.2	[3.1]^A	3.0	2.8	2.4	A	A				
14						S	1.9	2.3	A	A	A	A	A	3.2	3.2	3.0	2.8	2.4	A	A				
15						A	2.0	2.5	2.8	3.0	3.1	3.2	3.2	3.2	A	A	A	A	A	A				
16						A	A	A	A	A	3.2	A	A	3.2	3.2	3.1	2.9	2.6	A	A				
17						S	1.8	2.3	2.7	A	A	A	A	A	3.2	3.0	2.8	2.6	2.1	A				
18						1.5	2.0	2.4	2.6	A	A	A	(3.2)^P	(3.2)^P	(3.1)^P	3.1	2.8	2.6	2.0	S				
19						S	A	A	A	2.8	A	A	3.3	3.2	3.2	[3.1]^A	3.0	(2.6)^A	A	A				
20						A	A	(2.4)^A	A	A	A	3.2	A	A	A	3.1	3.0	2.6	2.0	A				
21						S	A	(2.4)^A	3.0	A	A	A	A	3.3	3.2	3.1	[2.8]^A	2.6	2.1	A				
22						S	2.1	2.6	2.8	3.1	3.2	3.2	3.2	3.2	3.2	A	A	A	A	A				
23						S	2.1^H	A	A	A	A	A	A	3.3	3.3	3.2	3.0	2.7	2.3	S				
24						S	A	A	A	A	A	A	(3.3)^P	3.3	(3.2)^P	3.2	3.0	2.6	2.3	S				
25						(1.5)^S	A	A	A	3.0	3.1	A	A	A	A	3.1	2.9	2.6	2.2	S				
26						S	2.0	2.5	2.8	3.0	3.1	3.2	3.3^K	A^K	A^K	A^K	3.0^K	2.6^K	2.1^K	1.6^K				
27						1.6^K	2.1^K	2.4^K	2.7^K	3.0^K	(3.1)^S_K	(3.2)^P_K	(3.3)^P_K	(3.2)^P_K	3.2^K	3.0^K	2.9^K	2.5^K	2.2^K	1.7^K				
28						A^K	A^K	2.4^K	2.7^K	3.0^K	3.1^K	A^K	A	3.3	3.2	3.1	A	A	2.2	1.6				
29						S	(2.1)^P	2.5	(2.7)^P	(2.9)^P	(3.1)^P	3.2	3.3	3.3	3.2	3.1	2.9	2.6	2.2^H	1.7				
30						S	2.1	2.5	(2.8)^P	A	A	A	3.3	3.3	3.2	3.1	2.9	2.6	2.2	1.6				
31						S	A	2.5	2.7	A	A	A	A	A	3.2	3.1	(2.8)^P	2.6	2.2	A				
Median						1.5	2.0	2.4	2.7	3.0	3.1	3.2	3.3	3.2	3.2	3.1	2.8	2.5	2.1	1.6				
Count						5	21	25	23	19	19	17	19	22	24	25	28	27	23	5				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 64

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Form adopted June 1946

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), May (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.1 160	E	26 130	E	E	1.3 110	G	G	G	G	G	G	G	G	G	G	G	G	G	1.9 120	E	E	E	E
2	E	E	E	E	5.0 100	E	G	G	G	4.5 110	3.4 120	34 110	5.4Y 100	G	G	G	G	G	G	E	E	E	E	E
3	E	E	E	E	E	13 110	G	G	10.0 110	G	G	30 110	G	4.1 100	4.3 100	3.2 110	G	G	G	E	E	E	E	E
4	E	E	E	E	E	7.3 140	C	C	G	G	G	G	3.9 100	5.0 120	G	G	G	G	G	E	E	E	E	E
5	E	E	E	E	4.6Y 120	G	80 110	G	G	G	G	7.6Y 120	G	4.4 140	G	G	G	G	G	E	E	E	E	E
6	E	E	E	E	E	1.3 110	G	G	G	9.4 110	3.6 120	G	G	G	G	7.6Y 110	4.2 110	G	32 130	1.7 130	E	E	E	E
7	E	E	E	E	E	1.9 120	G	G	G	2.9 100	3.2 100	G	G	G	G	G	G	G	G	G	1.2 130	E	24 130	1.2 130
8	E	E	1.9 120	E	E	75 100	G	G	64 110	G	48 120	44 110	6.4 120	84 110	G	G	G	54 120	82 120	45 110	52 110	45 110	30 110	32 110
9	3.1 110	3.0 110	30 100	7.4 110	40 110	13 120	3.2Y 130	5.2 120	4.0 120	G	G	3.3 110	6.8Y 110	36 120	34 110	4.0 110	36 110	G	40 120	6.0 110	54 110	56 110	44 110	E
10	E	E	E	E	E	2.1 110	27 100	G	36Y 120	4.0 110	G	G	G	G	G	G	G	3.1Y 110	3.9 120	3.9 110	31 110	26 110	E	E
11	E	34 110	3.0 100	4.2 110	1.1 110	1.4 110	2.4 110	2.4 110	G	31 110	G	4.1 110	42 110	4.1 100	G	G	34 110	G	G	G	20 120	1.1 120	4.4 110	27 120
12	E	E	66 100	E	E	G	G	G	4.1 120	4.0Y 120	4.3 120	G	5.8 110	8.0 110	10.0 110	12.6 110	36Y 120	G	4.6 130	41 120	1.3 110	4.3 110	40 110	33 110
13	E	E	E	E	E	G	G	4.2 120	4.8 110	G	4.3 110	25.0 D 100	7.0Y 120	G	71 100	G	G	4.8 120	8.5 110	47 110	24Y 120	E	E	E
14	E	E	E	38 140	29 110	31 130	37 120	4.8 110	61 110	54 110	4.0 110	4.6Y 110	4.3 110	G	G	G	4.6 120	4.1 120	5.2 110	3.1 110	24Y 110	54 110	44 110	3.2 110
15	2.6 110	2.3 110	E	24 100	2.1 150	30 120	38 100	52 110	4.7 110	7.5 110	74 110	5.8 110	59 110	9.5 110	5.0 110	44 110	4.0 110	55 110	66 110	4.7 100	7.6 100	82 110	78 110	7.2 110
16	7.6 110	7.4 110	40 110	4.6 110	3.3 110	40 110	4.2 110	10.5 110	4.7 120	7.0Y 120	5.0 130	6.1 110	44 110	4.1 130	G	G	G	4.1 120	58 120	45 110	38 110	48 110	E	E
17	30 110	30 100	5.0 100	40 100	4.0 100	1.9 110	31 120	40 110	4.2 110	7.1Y 120	40 110	4.0 110	36 110	3.3 110	G	G	G	G	36 130	4.0 120	E	E	E	E
18	E	20 140	E	E	E	G	3.3Y 130	G	G	4.4 110	45 120	5.4 110	G	G	G	G	G	G	G	1.8 130	44 150	24 110	E	E
19	E	E	E	E	E	G	30Y 120	7.0Y 110	4.0 110	G	40 110	3.3 110	G	6.6 110	54 110	5.6 110	4.8 110	90 110	7.2 110	3.2 H 120	31 110	38 110	31 110	30 110
20	26 110	24 110	E	42 110	40 120	5.0 110	42 110	36 110	7.0 110	45 110	50 100	G	4.1 100	4.1 110	7.3 110	10.0 110	50 120	4.3 120	58 110	4.1 110	60 100	42 100	32 100	32 100
21	E	E	25 100	4.2 100	30 100	7.2Y 100	3.5 110	3.6 100	G	4.2 100	34 100	6.3 100	42 100	G	7.0 100	3.1 110	3.7Y 110	7.0 130	4.2 120	47 110	38 110	32 110	40 110	38 110
22	30 100	25 110	E	23 110	30 110	48 110	3.0 110	G	G	G	G	G	G	54 110	5.3 110	4.5 110	42 110	3.8 110	51 110	4.3 110	1.2 110	30 110	24 110	3.3 100
23	50 110	42 100	3.0 100	31 100	2.8 100	G	G	4.0 110	7.0Y 110	52 110	62 110	55 100	40 100	3.8 100	4.0 100	G	8.0 100	37 120	3.5Y 130	3.1 120	36 110	3.8 110	33 110	2.5 110
24	50 110	2.8 100	3.2 110	E	37 110	2.4Y 110	31 110	36 110	41 110	42 110	42 110	6.6Y 110	G	G	54 100	G	G	G	G	4.1 130	E	E	E	E
25	E	E	E	E	E	G	39 100	34 100	4.0 110	G	G	47 100	78 110	61 110	5.0 110	G	G	G	G	56 120	7.6 120	72 120	45 120	46 110
26	3.9 120	57 110	50 110	49 110	35 110	3.2 110	G	G	G	G	5.0Y 120	5.0 110	4.6Y 110	46 110	3.5 110	34 110	G	G	G	G	32 140	E	E	E
27	E	E	7.6 110	72 110	38 110	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E	E	35 160	34 120
28	74 110	78 110	58 110	76 100	51 100	3.7 120	4.6 120	40 110	4.2Y 110	G	11.0 110	11.0 110	55 110	52 110	7.6 110	G	45 110	33 110	G	G	E	E	E	E
29	E	E	E	25 110	E	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E
30	E	E	E	36 100	E	G	G	G	G	4.0 110	42 110	54 110	5.0Y 110	58 110	54 110	76 110	57 110	G	G	G	E	E	E	E
31	E	E	E	E	E	G	2.4 110	G	45 110	32 110	9.2 100	3.9 110	52 100	76 100	G	G	G	G	G	1.9 110	1.3 110	E	E	E
Median	**	**	**	**	11	13	26	**	40	31	4.0	40	41	41	**	**	**	**	**	31	1.3	**	**	**
Count	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

** MEDIAN fEs LESS THAN foE, OR LESS THAN LOWER FREQUENCY LIMIT OF THE RECORDER.

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

Form adopted June 1946

TABLE 65

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

M1500) F2 (Characteristic), ____ (Unit), May (Month), 1952

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.8 FK	(17) FK	K(19) SF	(19) SK	E K	19 K	19 K	19 K	G K	G K	G K	G K	G K	G K	G K	G K	18 K	17 K	19 K	20 K	19 K	18 K	1.9 K	(1.9) S
2	18	18 F	17 F	(17) FS	F S	20	21	19	15 H	13	1.6	1.8	18	2.0	19	19	2.1	19	20	21	2.0	2.1	19	19
3	18 F	(19) F	(17) F	S F	(18) SF	2.0	21	20 K	G K	G K	G K	G K	G K	16 K	19 K	18 K	18 K	1.7 K	19 K	(20) SK	17 FK	K(17) FS	K(19) SF	K(19) SF
4	K(17) FS	S K	(18) FK	K(17) SF	E K	2.0 K	20 K	G K	G K	G K	G K	G K	G K	16 K	1.6 K	18 K	1.8 K	2.0 K	2.0 K	2.0 K	2.0 K	1.9 FK	19 K	19 FK
5	18 K	16 K	17 K	E K	E K	21 FK	(21) SK	1.8 K	G K	G K	G K	G K	G K	16 K	1.7 K	2.0 K	2.0 K	2.0 K	1.9 K	21 K	2.0 K	1.9 K	20 K	20 K
6	18 K	18 K	19 K	(18) FK	(16) FK	20 FK	21 K	19 K	G K	G K	G K	G K	G K	16 K	19 K	18 K	K(18) JS	20 K	19 K	2.0 K	(2.0) SK	20 K	(20) SK	K(19) JS
7	20 K	K(18) HS	1.8 FK	K(18) FS	K(18) FS	K(17) FS	K22 HF	G K	G K	G K	G K	G K	G K	G K	1.6 K	15 K	·15 K	1.7 K	1.8 K	19 K	21 K	21 K	16 FK	17 K
8	(16) SK	17 K	(17) SK	E K	(16) FK	19 K	22 K	G K	G K	G K	G AK	G K	G K	1.9	19 H	2.0	1.9 H	(21) A	2.2	21	2.0	2.0	20	19
9	20 F	19 F	19 F	(19) A	A	21	22	(19) AJ	15	G	G	G	1.7	1.4	18	18	1.9	2.0	2.1	A	21	2.0	2.0	2.0
10	19	19	19	20	1.9	2.1	(21) S	21 H	16	19	20	19	18	18	19	2.0	2.1	20 H	21	22	21	2.1	2.1	21
11	21	20	19	20	20	22	23	23 H	2.0 H	22 H	20	20	21	1.9 H	21	21	20	20	21	2.1	21	19	21	2.0
12	2.0	21	24	21	20	2.0	2.0	21	1.8	18 H	18	16	18	A	A	A	21	2.0	22	2.1	2.0	20	2.0	2.0
13	2.0	20	21	2.0	1.9	2.1	2.0	1.9	S	16	1.6	1.6	19	1.7	16	1.9	1.6	2.0	(22) A	2.1	21	2.0	1.9	1.9
14	21	19	20	20 F	2.0	22	2.0	22	18	1.9	20	18 H	21 H	2.0 H	20	21	21	22	22	23	22	A	19	2.0
15	20	20	2.0	21	22	24	24	A	23	2.1	A	22	20	21	20	21	2.1	22	21	23	(2.0) A	A	A	A
16	A	A	(20) FA	20 F	21	23 H	23 H	23 H	23 H	22	20	2.1	21 H	20 H	22	2.0	21	2.1	21	23	23	21	2.0	2.0
17	2.0	2.0	A	20	20 F	24	23	22 H	24	23	21	20	2.1	21	2.1	21	21	2.0	21	2.0	19	1.8	1.9	2.0
18	2.3	20	19	20	18	2.2	16	17	19	19	G	A	G	16	1.8	1.9	2.0	1.9 H	21	22	21	19 F	19 F	(19) F
19	18	19	2.0	23	(19) SJ	21	21	18	19 F	22	18	15 H	1.6	(17) AJ	2.0	19	20	A	(22) A	22	21	2.0	2.0	20
20	21	22	20 F	19 F	20 F	A	20	23	(19) H	23	1.8	19	19 H	2.1	20 H	20 H	2.0 H	2.0	21 H	(22) SF	22 F	2.0 F	(20) F	(1.9) F
21	(20) F	19 F	1.9 F	(2.0) A	(21) F	21	(14) B	1.9	23 H	16	1.5	1.7	G	1.6	17	1.9	2.0	20	2.1	21	2.1	21	20	20
22	20	20	21	20	21	21	24	24	20 H	22 H	20	21	22	1.8	21	20	20	2.0	21	21	22	22	2.1	2.0
23	21 F	20 F	2.0	20	20	23	23	21	(21) H	23 H	2.0	22	21 H	22	2.0	20	21	2.0	2.1	21	22	20	20	2.0
24	21	21	2.0	20	20	23	S	20	19	20	2.0	21	1.8 H	1.9	1.9 S	21 H	21	20	2.2	(20) S	2.0	1.9 Z	2.0	1.9 F
25	21	21	2.1	22	19	20	21	1.6	1.8	2.0	19 H	19	(19) A	20	21 H	21	20	2.1	21	22	(2.1) S	(2.0) S	(20) S	2.0
26	21 S	20 F	A	21 F	(1.9) F	22	(16) S	1.9	19	21 H	1.9	2.0	18 K	20 K	1.9 K	2.0 HK	1.9 K	19 HK	1.8 K	(1.8) SK	(1.7) FK	16 K	(16) FK	(1.7) FK
27	(18) FK	(17) FK	A K	(1.7) FK	(18) FK	22 K	G K	G K	G K	G K	G K	G K	1.6 K	1.6 K	17 K	19 K	1.8 K	20 K	1.7 K	22 K	(21) SK	20 K	20 K	19 FK
28	A K	A K	19 K	A K	A K	22 FK	22 K	G K	G K	G K	G K	A K	(1.4) A	17	A	18	20	20	21	22	1.9	19	2.0	19
29	19	19	19	(18) F	(19) F	21 F	(19) S	(19) S	2.1	G	G	G	G	1.6	18	18	2.1	19	2.0	22	2.0	19	19	1.9
30	1.9 F	1.9 F	1.9 F	(20) F	19 F	23	G	1.9	1.9 H	17	17 H	1.8 H	18	20	1.8	2.0	21	21	21	2.1	22	2.0	2.0	21
31	20	1.9	2.0	20	20	21	17 H	19 H	(15) A	1.9 H	19 H	1.9 H	1.9 H	A	21	19	2.0	20	20	2.1	2.2	21	22	2.0
Median	20	19	19	20	19	21	21	19	18	1.8	16	18	18	18	19	20	2.0	20	21	2.1	21	20	20	2.0
Count	29	28	28	27	25	30	30	30	30	31	30	29	31	29	29	30	31	30	31	30	31	29	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 703516

TABLE 66

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Form adopted June 1946

IONOSPHERIC DATA

(M3000) F2 (Characteristic), ______ (Unit), May (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.7FK	(2.6)FK	(2.8)SK	(2.8)SK	EK	2.8K	2.8K	2.8K	GK	GK	GK	GK	GK	GK	GK	GK	2.7K	2.6K	2.8K	2.9K	2.9K	2.7K	2.8K	(2.9)S
2	2.7	2.7F	2.6F	(2.6)FS	FS	2.9	3.1	2.8	2.3H	2.0	2.4	2.7	2.7	2.9	2.9	2.9	3.1	2.9	3.0	3.1	3.0	3.1	2.8	2.8
3	2.7F	(2.8)F	(2.6)F	SF	(2.7)SF	3.0	3.1	3.0K	GK	GK	GK	GK	GK	2.5K	2.8K	2.7K	2.7K	2.6K	2.8K	(3.0)SK	2.6FK	(2.6)SFK	(2.8)SFK	(2.8)SFK
4	(2.6)FSK	SK	(2.7)FK	(2.6)SFK	EK	2.9K	3.0K	GK	GK	GK	GK	GK	GK	2.4K	2.4K	2.7K	2.7K	2.9K	2.9K	3.0K	3.0K	2.8FK	2.8K	2.8FK
5	2.7K	2.5K	2.6K	EK	EK	3.1FK	(3.1)SK	2.7K	GK	GK	GK	GK	GK	2.4K	2.6K	3.0K	3.0K	3.0K	2.8K	3.1K	3.0K	2.8K	3.0K	2.9K
6	2.7K	2.7K	2.9K	(2.7)FK	(2.5)FK	2.9FK	3.1K	2.8K	GK	GK	GK	GK	GK	2.5K	2.8K	2.7K	(2.7)JSK	2.7K	2.9K	3.0K	(3.0)SK	3.0K	(3.0)SK	(2.8)SJK
7	3.0K	(2.7)SK	2.7FK	(2.7)SFK	(2.7)FSK	(2.6)FK	3.2HFK	GK	GK	GK	GK	GK	GK	GK	2.4K	2.3K	2.3K	2.6K	2.7K	2.9K	3.1K	3.1K	2.5FK	2.6K
8	(2.5)SK	2.6K	(2.6)SK	EK	(2.5)FK	2.9K	3.2K	GK	GK	GK	GAK	GK	GK	2.8	2.9H	3.0	2.9H	(3.1)A	3.2	3.1	3.0	3.0	3.0	2.9
9	2.9F	2.8F	2.8F	(2.9)A	A	3.1	3.2	(2.9)AS	2.3	G	G	G	2.5	2.2	2.7	2.7	2.9	3.0	3.1	A	3.1	3.0	3.0	2.9
10	2.9	2.8	2.9	2.9	2.8	3.1	(3.1)S	3.1H	2.4	2.8	3.0	2.9	2.7	2.7	2.9	2.9	3.1	3.0H	3.1	3.2	3.0	3.1	3.1	3.1
11	3.1	3.0	2.8	3.0	2.9	3.2	3.3	3.3H	3.0H	3.2	2.9	3.0	3.1	2.8H	3.1	3.1	3.0	3.0	3.1	3.1	3.1	2.8	3.1	3.0
12	3.0	3.1	3.5	3.1	3.0	3.0	3.0	3.1	2.7H	2.7	2.7	2.8	2.7	A	A	A	3.1	3.0	3.2	3.1	3.0	3.0	3.0	3.0
13	2.9	3.0	3.1	3.0	2.8	3.1	3.0	2.8	S	2.5	2.4	2.5	2.8	2.6	2.5	2.8	2.5	3.0	(3.2)A	3.1	3.1	3.0	2.9	2.9
14	3.1	2.8	3.0	3.0F	3.0	3.2	3.0	3.2	2.7	2.9	3.0	2.7H	3.1H	2.9H	2.9	3.1	3.1	3.2	3.2	3.3	3.2	A	2.9	2.9
15	3.0	3.0	3.0	3.1	3.2	3.5	3.4	A	3.3	3.1	A	3.2	3.0	3.1	3.0	3.1	3.1	3.2	3.1	3.3	(3.0)A	A	A	A
16	A	A	(3.0)A	2.9F	3.1	3.3H	3.3H	3.3H	3.3H	3.2	3.0	3.1	3.1H	3.0H	3.2	3.0	3.1	3.1	3.1	3.3	3.3	3.1	3.0	3.0
17	2.9	3.0	A	3.0	3.0F	3.4	3.3	3.2H	3.5	3.3	3.1	3.0	3.1	3.1	3.1	3.1	3.1	3.0	3.1	3.0	2.9	2.7	2.8	3.0
18	3.3	3.0	2.9	3.0	2.7	3.2	2.4	2.6	2.8	2.9	G	A	G	2.4	2.7	2.8	2.9	2.8H	3.1	3.2	3.1	2.9F	2.8F	(2.9)F
19	2.7	2.8	2.9	3.3	(2.9)SJ	3.1	3.1	2.7	2.8F	3.2	2.7	2.3H	2.4	(2.6)AJ	2.9	2.8	2.9	A	(3.2)A	3.2	3.1	2.9	2.9	3.0
20	3.1	3.2	3.0F	2.8F	2.9F	A	3.0	3.3	(2.8)H	3.3	2.7	2.8	2.8H	3.1	3.0H	3.0H	3.0H	3.0	3.1H	(3.2)SA	3.2F	3.0F	(3.0)F	(2.9)F
21	(3.0)F	2.9F	2.8F	(2.9)A	(3.1)F	3.1	(2.2)B	2.9	3.3H	2.4	2.3	2.6	G	2.4	2.6	2.8	2.9	3.0	3.1	3.1	3.1	3.1	2.9	3.0
22	3.0	3.0	3.1	3.0	3.1	3.1	3.4	3.5	3.0H	3.2H	3.0	3.1	3.2	2.7	3.1	3.0	3.0	3.0	3.1	3.1	3.2	3.2	3.1	3.0
23	3.1F	3.0F	3.0	3.0	3.0	3.3	3.4	3.1	(3.1)H	3.3H	3.0	3.2	3.1H	3.2	3.0	3.0	3.1	3.0	3.1	3.1	3.3	3.0	3.0	3.0
24	3.1	3.1	3.0	3.0	3.0	3.3	S	3.0	2.8	3.0	3.0	3.1	2.7H	2.9	2.9S	3.1H	3.1	3.0	3.2	(3.0)S	3.0	2.9Z	3.0	2.9F
25	3.1	3.1	3.1	3.2	2.8	3.0	3.1	2.5	2.7	3.0	2.8H	2.8	(2.9)A	3.0	3.1H	3.1	3.0	3.1	3.1	3.2	(3.1)S	(3.0)S	(3.0)S	3.0
26	3.1S	3.0F	A	3.1F	(2.8)F	3.2	(2.4)S	2.8	2.9	3.1H	2.8	2.9	2.7K	2.9K	2.8K	2.9HK	2.9K	2.8HK	2.7K	(2.7)SK	(2.6)FK	2.4K	(2.5)FK	(2.6)FK
27	(2.7)FK	(2.6)FK	AK	(2.6)FK	(2.7)FK	3.2K	GK	GK	GK	GK	GK	GK	2.4K	2.4K	2.6K	2.8K	2.7K	2.9K	2.6K	3.2K	(3.1)SK	3.0K	3.0K	2.8FK
28	AK	AK	2.8K	AK	AK	3.2FK	3.2K	GK	GK	GK	GK	AK	(2.1)A	2.6	A	2.7	2.9	3.0	3.1	3.2	2.8	2.8	2.9	2.8
29	2.8	2.9	2.8	(2.7)F	(2.8)F	3.1F	(2.8)S	(2.8)S	3.1	G	G	G	G	2.4	2.7	2.7	3.1	2.9	3.0	3.2	2.9	2.8	2.8	2.8
30	2.8F	2.9F	2.8F	(3.0)F	2.8F	3.3	G	2.8	2.8H	2.6	2.6H	2.7H	2.7	3.0	2.7	3.0	3.1	3.1	3.1	3.1	3.2	2.9	3.0	3.1
31	2.9	2.9	3.0	3.0	3.0	3.1	2.6H	2.8H	(2.2)A	2.8H	2.9H	2.8H	2.9H	A	3.1	2.9	2.9	2.9	3.0	3.1	3.2	3.1	3.2	3.0
Median	2.9	2.9	2.9	3.0	2.9	3.1	3.1	2.8	2.7	2.7	2.5	2.7	2.7	2.7	2.9	2.9	3.0	3.0	3.1	3.1	3.1	3.0	3.0	2.9
Count	29	28	28	27	25	30	30	30	30	31	30	29	31	29	29	30	31	30	31	30	31	29	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 67

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

(M3000)F1 (Characteristic), (Unit), May (Month) 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							(3.3)LK	3.6K	3.8K	4.1K	4.1K	4.1K	4.0HK	3.9HK	3.8K	3.8H	3.6K	3.4K	3.4K					
2							Q	3.5	3.7	4.0H	3.6H	3.8	3.7	3.7	3.6	3.6	3.6	3.5	L					
3							Q	3.5K	3.6K	3.9K	(4.0)PK	3.9HK	4.0K	3.9HK	3.7K	3.5K	3.6K	3.5HK	3.3K					
4							LK	3.5HK	3.8HK	4.1K	4.0HK	4.2K	3.9HK	3.8K	3.8HK	3.7K	3.4K	3.5K	3.4K					
5							QK	3.6K	3.8HK	4.0K	4.0HK	4.0HK	3.9HK	3.7HK	3.7K	3.6K	3.7K	3.5K	3.5K					
6							3.4K	LK	3.7K	4.1HK	3.9HK	4.1K	3.8HK	3.7K	3.7HK	3.6K	3.5K	3.4K	LK					
7							QK	3.7K	4.0K	3.8HK	3.9HK	4.0HK	4.1HK	3.9HK	3.8K	3.9K	3.7K	3.4K	3.3K					
8							QK	3.5HK	3.7K	3.8K	AK	4.1K	3.7K	3.7	3.8	3.6	3.6H	A	A					
9							L	A	3.8	4.1H	4.4	4.2H	4.1	3.9H	3.8H	3.7	3.6	3.6	3.6					
10							L	3.5H	3.7	4.0	4.0H	4.2H	4.1H	3.9H	3.9H	3.8	3.7	3.7	L	L				
11							L	L	3.6H	3.7H	3.8H	3.9H	3.9	3.9	3.7	3.6	3.5	3.4	L	Q				
12							L	3.6	3.7	3.9H	4.0	4.1H	3.7	A	A	A	3.8H	3.5	A	A				
13							L	3.6	3.7	3.8	4.0	3.9	4.0	3.8	3.7H	3.8	3.9	3.4	A	A				
14							L	A	3.6	4.0	3.9	4.0	4.0	3.8	3.7H	3.8	A	A	A	A				
15							A	A	A	3.6	A	A	A	3.9	3.7	3.7	3.7	3.6	L	Q				
16							L	A	3.7	3.9H	3.8H	4.0H	4.0H	4.1	3.8H	3.7	3.7H	3.7	A	Q				
17							L	3.7	3.9	3.9H	3.9	4.0	3.9H	3.8H	3.7	3.7	3.7	3.6	L	Q				
18							3.4	3.7	3.8	3.8H	4.0H	A	3.8	3.7	3.7H	3.6	3.7	3.6	3.6	Q				
19							L	3.6	3.8	4.0	4.1	3.8	3.9	A	A	A	(3.8)A	A	A	A				
20							A	3.6	3.6	3.8	3.9	3.9	4.0	3.7	3.8H	3.8	3.7H	3.6	A	A				
21							3.6	3.7	3.9	4.1	4.2H	4.1	4.0	4.0	3.9	3.7	3.5	3.5	A	A				
22							L	L	3.6H	4.0	4.1	3.8H	4.0	A	A	3.8	3.7	3.5	A	A				
23							L	3.6	3.7	3.8	A	4.0	4.0	3.9H	3.7	3.8	3.6	3.7	3.6	Q				
24							(3.4)L	3.6	3.9	3.8	4.0H	3.7	3.8H	3.7H	3.8H	3.8	3.7	3.6	L	L				
25							3.5	3.8	3.6H	4.1	4.1H	3.9	(3.8)A	A	3.9	3.8	3.7H	3.6H	L	A				
26							3.3	3.4H	3.6	3.9	3.7	3.9H	3.6K	3.6K	3.6K	3.7K	3.6K	3.5HK	3.4K	LK				
27							3.7K	3.7K	3.8K	4.0SK	4.0K	4.0K	3.9HK	3.8K	3.8HK	3.6HK	3.6K	3.6K	LK	LK				
28							3.5K	3.6K	3.7K	3.8K	3.9HK	AK	3.8	3.8	A	3.7	3.6	3.5	3.7	L				
29							(3.5)L	3.9	3.8H	4.0H	4.0H	4.0	4.0	3.9	3.7	3.7	3.7	3.6	3.5	Q.				
30							3.5	3.7	3.8	3.9	4.0H	A	A	A	A	A	3.5	3.5	3.7	L				
31							3.4	3.6H	3.8H	4.0H	3.9H	3.9H	4.0	A	3.9	3.9	3.5H	3.5	3.5	L				
Median							3.4	3.6	3.7	3.9	4.0	4.0	3.9	3.8	3.8	3.7	3.6	3.5	3.5	-				
Count							12	24	30	31	28	27	29	25	26	28	30	28	13					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 68

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

(M1500)E (Characteristic), ____ (Unit), May (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: McC., A.C.K.

Calculated by: McC., A.C.K., E.J.W., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							4.3K	4.1K	4.3K	4.4K	4.3K	(4.3)PK	(4.3)PK	4.2K	4.1K	4.1K	4.1K	4.1K	4.1K					
2							4.1	4.1H	4.2	(4.0)P	A	A	4.1	(4.3)P	4.1	4.1	4.1	4.1	3.8					
3							3.9	4.1K	(3.9)PK	4.2K	(4.3)PK	4.0K	4.1K	AK	AK	AK	4.1K	4.2K	3.7K					
4						4.5K	CK	CK	(4.2)PK	4.0K	(4.1)PK	(4.2)PK	(4.2)PK	4.1K	4.2K	4.2K	4.2K	4.2K	4.0HK					
5						SK	4.1K	(4.1)PK	4.1K	(4.1)PK	4.3K	4.2HK	4.2HK	4.4K	4.4K	4.2K	4.2K	4.2K	3.8HK					
6							4.1K	4.1K	(4.3)PK	AK	AK	4.2K	4.2K	4.2K	4.2K	4.3K	AK	4.1HK	3.8K					
7							(4.2)HK	4.2HK	4.2K	AK	4.1K	4.3K	(4.2)PK	(4.2)PK	4.1K	4.2K	4.1K	4.1K	4.1HK	SK				
8							4.4K	4.4K	(4.2)PK	4.3K	4.2K	(4.2)PK	AK	A	4.2	4.3	4.1	4.3	4.3	A				
9							4.3	4.3	4.1	4.2	4.4	A	(4.1)P	A	A	A	4.1	4.1	A	A				
10							A	4.3	A	A	4.5	4.4	4.1	4.2H	4.3	4.4	(4.3)P	A	A	A				
11						4.1	A	4.2	4.5	A	4.2	A	A	4.3	4.3	4.2	A	4.1	4.1H	S				
12						S	4.1	4.1	A	4.3	4.3	4.4	A	A	A	A	4.2	4.1H	4.1	A				
13						S	4.0	4.2	4.3	4.4	A	4.4	4.4	4.3	A	4.3	4.1	4.4	A	A				
14						S	4.4	4.3	A	A	A	A	A	4.2	4.1	4.3	4.2	4.2	A	A				
15						A	4.3	4.3	4.3	4.4	4.4	4.3	4.3	4.5	A	A	A	A	A	A				
16						A	A	A	A	A	4.2	A	A	4.6	4.3	4.4	4.3	4.3	A	A				
17						S	4.4	4.5	4.4	A	A	A	A	A	4.2	4.3	4.2	4.2	4.2	A				
18						4.1	4.2	4.2	4.5	A	A	A	(4.2)P	(4.3)P	(4.3)P	4.1	4.2	4.2	4.3	S				
19						S	A	A	A	4.5	A	A	4.2	4.4	4.2	A	4.1	(4.5)A	A	A				
20						A	A	(4.4)A	A	A	A	4.3	A	A	A	4.5	4.3	4.5	4.6	A				
21						S	A	(4.6)A	4.5	A	A	A	A	4.2	4.3	4.3	A	4.1	4.3	A				
22						S	4.0	4.0	4.3	4.2	4.2	4.2	4.3	4.3	4.3	A	A	A	A	A				
23						S	4.4H	A	A	A	A	A	A	4.3	4.2	4.2	4.5	4.4	4.1	S				
24						S	A	A	A	A	A	A	(4.4)P	4.2	(4.2)P	4.3	4.3	4.3	4.2	S				
25						(4.7)S	A	A	A	4.6	4.7	A	A	A	A	4.2	4.3	4.2	4.2	S				
26						S	4.3	4.2	4.2	4.2	4.3	4.4	4.3K	AK	AK	AK	4.3K	4.5K	4.3K	3.7K				
27						3.7K	4.3K	4.2K	4.4K	4.4K	(4.3)SK	(4.3)PK	(4.2)PK	(4.5)PK	4.4K	4.4K	4.3K	4.5K	4.2K	3.9K				
28						AK	AK	4.4K	4.4K	4.3K	4.4K	AK	A	4.3	4.5	4.4	A	A	4.1	3.7				
29						S	(4.3)P	4.6	(4.4)P	(4.5)P	(4.2)P	4.3	4.2	4.2	4.3	4.2	4.3	4.2	4.1H	4.2				
30						S	4.2	4.4	(4.3)P	A	A	A	4.3	4.5	4.5	4.5	4.6	4.3	4.2	3.6				
31						S	A	4.5	4.4	A	A	A	A	A	4.4	4.3	(4.4)P	4.3	4.4	A				
Median						4.1	4.2	4.2	4.3	4.3	4.3	4.3	4.2	4.3	4.3	4.3	4.2	4.2	4.1	3.7				
Count						5	[illegible]	25	22	17	18	16	19	22	23	24	25	27	23	5				

Sweep 1.0 Mc to 25.0 Mc in 0.23 min

Manual ☐ Automatic ☒

Table 69

Ionospheric Storminess at Washington, D. C.

May 1952

Day	Ionospheric character* 00-12 GCT	Ionospheric character* 12-24 GCT	Principal storms Beginning GCT	Principal storms End GCT	Geomagnetic character** 00-12 GCT	Geomagnetic character** 12-24 GCT
1	4	5	###	----	5	4
2	2	1	----	0400	4	4
3	3	4	1200	----	4	4
4	4	5	----	----	4	4
5	4	4	----	----	4	3
6	4	4	----	----	4	3
7	4	5	----	----	5	5
8	5	3	----	1800	4	3
9	3	3			1	1
10	3	2			2	1
11	2	3			1	3
12	1	1			3	2
13	1	3			2	3
14	0	2			3	2
15	1	3			1	2
16	2	3			2	2
17	2	3			2	2
18	1	3			5	4
19	1	3			5	3
20	1	2			4	3
21	1	3			3	3
22	0	2			2	1
23	1	3			2	3
24	1	1			3	3
25	1	1			4	2
26	1	3	1700	----	3	5
27	5	5	----	----	5	4
28	4	4	----	1700	4	5
29	3	3			4	4
30	2	2			4	3
31	1	2			4	3

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

----Dashes indicate continuing storm.

###Storm began at 0600 GCT on April 30, 1952.

Table 70

Solar Flares, April 1952

Observatory	Date 1952	Time Observed Beginning (GCT)	Time Observed Ending (GCT)	Duration (Min)	Area (Mill of Visible Hemisph)	Position Latitude (Deg)	Position Longitude Diff (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
Boulder	Apr. 3	1511	1516	5	70	S05	W49	1512	10	8	1 -	
"	3	1832	1932	60	300	S05	W49	1842	18	5	1	
"	4	2218	2258	40	80	S02	W70	2240	25	8	1 -	
"	7	2050	2115	25	50	N02	E09	2100	8	8	1 -	
"	8	1440	1515	35	80	N06	E00	1445	10	3	1 -	
Boulder	12	1717	1737	20	80	N06	W47	1722	5	6	1 -	
"	14	2307	-	-	150	N10	W89	2320	10	-	1	
"	19	1516B	1521	-	130	S08	W12	1516	5	0	1	
"	19	1824	1839	15	130	S08	W12	1832	10	5	1	
"	19	2048	2113	25	100	S08	W12	2051	5	5	1	
"	19	2131B	2146	-	80	S09	W12	2131	5	0	1 -	

B Flare started before given time
A Flare ended after given time
Q Time reported as questionable

Table 71a

Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings, Short Term and Advance Forecasts)

January 1952

Day	North Atlantic quality figure		CRPL Warning WWV Broadcast		Short-term forecasts issued about one hour in advance of 12-hour period, UT:				Advance forecasts (J-reports) for whole day; issued in advance by:			Geomagnetic K_{Ch}	
	Half Day UT		Half Day UT		00 to 12	06 to 18	12 to 24	18 to 06	1 to 3/4 days	4/5 to 7 days	8 to 25 days	Half day UT	
Jan	(1)	(2)	(1)	(2)								(1)	(2)
1	5	5	U	U	(4)	5	6	6	5	7		(4)	3
2	5	6	U		5	6	6	6	6	7		2	2
3	5	5			6	6	7	7	6	6		2	2
4	5	6			6	5	6	6	(4)	(4)	X	2	3
5	(4)	5	W	W	5	(3)	5	(4)	(4)	(4)	X	(5)	3
6	(4)	5	W	W	(4)	(3)	(4)	5	(4)	(4)	X	(4)	3
7	(4)	5	W	U	(4)	(4)	5	5	(4)	(4)	X	2	3
8	(4)	6	U		5	5	6	7	5	5		3	2
9	5	7			6	6	5	7	6	5		2	3
10	(4)	5	U		6	5	6	6	6	6		3	(4)
11	(4)	6		U	5	5	6	5	6	6		(4)	3
12	(4)	5	U	U	6	(4)	5	6	5	6		(4)	(4)
13	5	5	U	W	5	5	6	(4)	5	6		(4)	(5)
14	(4)	5	W	W	(4)	(4)	5	6	5	5		(4)	(4)
15	(3)	5	W	W	5	(4)	5	6	5	5		(4)	(4)
16	(4)	5	U	U	(4)	5	5	5	(4)	(4)		3	2
17	(4)	5	U		5	5	6	6	(4)	(4)		2	2
18	6	6			6	5	6	6	5	5		1	1
19	5	6			6	6	7	6	6	5		1	1
20	6	6			6	6	7	6	5	6		1	1
21	6	6			6	6	7	7	5	6		1	1
22	6	6			7	7	7	7	6	6		1	2
23	5	5			7	6	7	6	7	6		3	(4)
24	5	6			6	6	6	6	6	6		2	3
25	5	6			6	6	7	7	6	6		3	2
26	5	7			7	5	7	7	6	6		1	1
27	6	(4)		(U)	7	6	5	5	5	6		3	(4)
28	(4)	6	U		5	5	6	7	5	6		(4)	2
29	5	5			7	5	6	7	6	6		2	(4)
30	(4)	6			5	5	6	6	6	6		3	2
31	5	6			6	5	7	7	5	6		1	2
Score:													
P					9		15		12	11			
S					18		26		20	19			
H			19		4		0		5	5			
(M)			0		6		1		5	2			
M			2		3		0		4	7			
(O)					1		1		0	0			
O			6		0		0		1	1			
G			35		17		29		16	16			

Scales:

Q-scale of Radio Propagation Quality

- (1) - useless
- (2) - very poor
- (3) - poor
- (4) - poor to fair
- 5 - fair
- 6 - fair to good
- 7 - good
- 8 - very good
- 9 - excellent

K-scale of Geomagnetic Activity

0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis

Symbols:

W- disturbed; U- unsettled; N- normal, left blank in Table; ( ) broadcast for one quarter day. X- probable disturbed date.

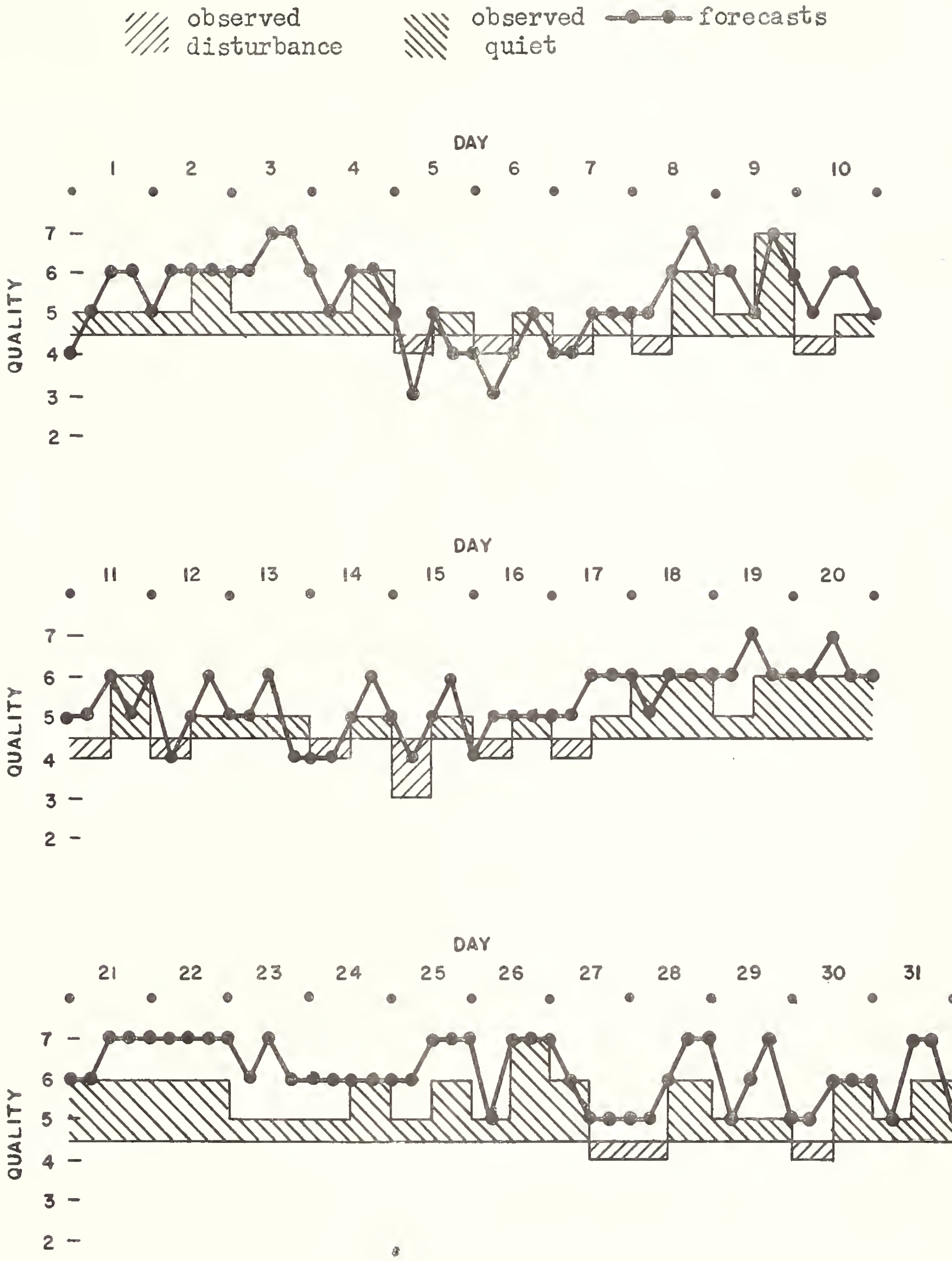
Scoring:

- P - Perfect forecast; observed equal to forecast
- S - Satisfactory forecast; P plus other times correctly designated as disturbed or quiet, within one grade
- H - Storm ($Q \leq 4$) hit, except (M)
- (M)- Storm hit, severity underestimated by two grades or a 5 forecast for Q=4 day
- M - Storm missed
- (O)- Overwarning on observed fair day
- O - Other overwarnings
- G - Good (quiet) day forecast

Note: See above for scoring legend, scales and symbols; see text for scoring conventions and other information.

Table 71b

Short Term Forecasts--January 1952



Advance Forecasts (1 to 3/4 days ahead) -- January 1952

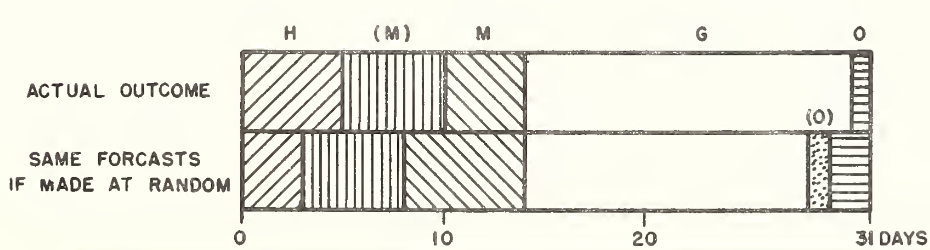


Table 72a

Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings, Short Term and Advance Forecasts)

February 1952

Day	North Atlantic Quality figure		CRPL Warning WWV Broadcast		Short-term forecasts issued about one hour in advance of 12-hour period, UT:				Advance forecasts (J-reports) for whole day; issued in advance by:			Geomagnetic K_{Ch}	
Feb	Half Day UT (1)	(2)	Half Day UT (1)	(2)	00 to 12	06 to 18	12 to 24	18 to 06	1 to 3/4 days	4/5 to 7 days	8 to 25 days	Half day UT (1)	(2)
1	5	5		W	5	5	(4)	5	(4)	(4)	X	3	3
2	(4)	6	W	W	5	(4)	5	6	(4)	(4)	X	(4)	2
3	5	6			6	6	7	7	5	(4)	X	2	2
4	6	7			7	6	7	7	5	5		1	1
5	5	7			7	6	7	6	5	5		1	1
6	5	5			7	6	6	6	5	(4)	X	3	(4)
7	(4)	5	U	U	5	(4)	5	6	(4)	(4)	X	(5)	3
8	(4)	5	W	W	5	(4)	5	5	(4)	(4)	X	(4)	(4)
9	(4)	5	W	W	(4)	(3)	(4)	5	(3)	(4)	X	(4)	(4)
10	(4)	5	W	W	(4)	(4)	5	6	(4)	(4)	X	3	(4)
11	(4)	(4)	W	W	(4)	(3)	5	5	(4)	(4)	X	(4)	(4)
12	(4)	5	W	W	5	(3)	5	5	5	5		(4)	(4)
13	(4)	6	W	W	(4)	(4)	5	5	(4)	6		(4)	(4)
14	(4)	6	W		(4)	(4)	6	6	5	6		3	3
15	(4)	7			5	5	6	6	6	6		3	2
16	(4)	5		U	6	5	5	(4)	7	7		(5)	(4)
17	(4)	6	W	W	(4)	(3)	(4)	5	7	7		3	2
18	5	6			5	5	6	6	5	5		3	3
19	5	6	U		6	(4)	6	6	(4)	5		(4)	3
20	5	5			5	5	6	5	5	(4)		3	1
21	5	7			5	5	7	7	6	6		1	1
22	6	7			6	6	7	7	6	6		1	1
23	7	8			7	6	7	7	5	5		2	2
24	(4)	(4)	W	W	5/(3)	(3)	(4)	(4)	5	5		(5)	(4)
25	(4)	6	W	W	(4)	(3)	5	5	5	5		3	2
26	5	6	U	U	5	(4)	6	5	6	6		(4)	(4)
27	(4)	5	U	U	5/(4)	(4)	5	5/(4)	5	6		(5)	3
28	(4)	(4)	W	W	(4)	(4)	5	5	(4)	5		(5)	3
29	(4)	5	W	U	(4)	(4)	5	(4)	(4)	5		3	3
Score:													
P					16		16		11	7			
S					19		24		16	11			
H			24		9		1		9	6			
(M)			0		7		2		5	5			
M			2		1		0		3	6			
(O)					0		2		1	3			
O			10		0		1		1	1			
G			22		12		23		10	8			

Scales:
Q-scale of Radio Propagation Quality

- (1) - useless
- (2) - very poor
- (3) - poor
- (4) - poor to fair
- 5 - fair
- 6 - fair to good
- 7 - good
- 8 - very good
- 9 - excellent

K-scale of Geomagnetic Activity

0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis

Symbols:

W- disturbed; U- unsettled; N- normal, left blank in Table; ( ) broadcast for one quarter day. X- probable disturbed date.

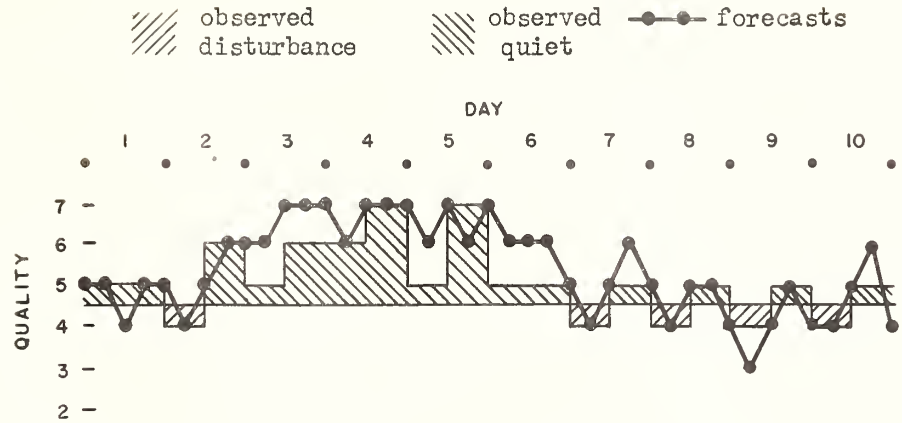
Scoring:

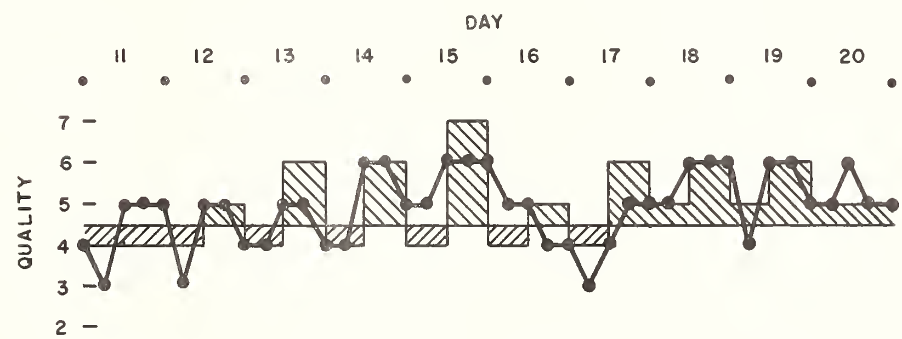
- P - Perfect forecast; observed equal to forecast
- S - Satisfactory forecast; P plus other times correctly designated as disturbed or quiet, within one grade
- H - Storm ($Q \leq 4$) hit, except (M)
- (M)- Storm hit, severity underestimated by two grades or a 5 forecast for Q=4 day
- M - Storm missed
- (O)- Overwarning on observed fair day
- O - Other overwarnings
- G - Good (quiet) day forecast

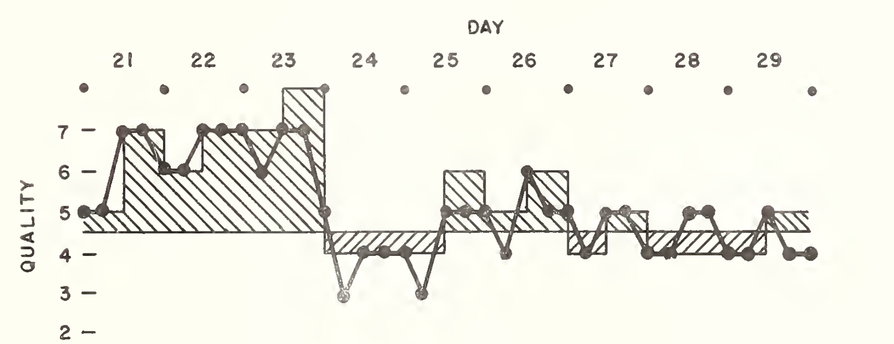
Note: See above for scoring legend, scales and symbols; see text for scoring conventions and other information.

Table 72b

Short Term Forecasts--February 1952







Advance Forecasts (1 to 3/4 days ahead) -- Februarv 1952

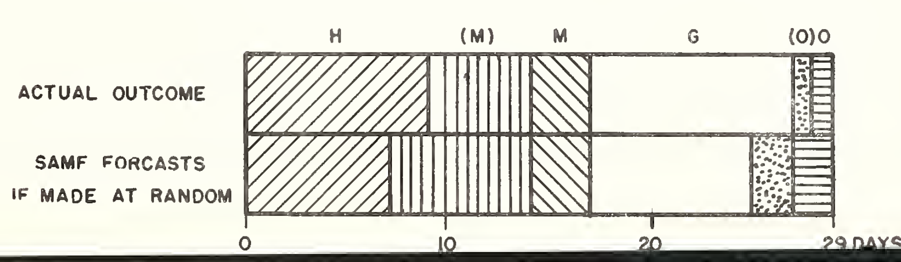


Table 73a

Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings, Short Term and Advance Forecasts)

March 1952

Day	North Atlantic quality figure		CRPL Warning WWV Broadcast		Short-term forecasts issued about one hour in advance of 12-hour period, UT:				Advance forecasts (J-reports) for whole day; issued in advance by:			Geomagnetic K_{Ch}	
	Half Day UT		Half Day UT		00 to 12	06 to 18	12 to 24	18 to 06	1 to 3/4 days	4/5 to 7 days	8 to 25 days	Half day UT	
Mar	(1)	(2)	(1)	(2)								(1)	(2)
1	(4)	5	U	U	(4)	(4)	5	5	(4)	6		(4)	2
2	(4)	6			5	5	6	6	6	6		1	1
3	5	6		W	6	5	6/(4)	(4)	6	6		1	(5)
4	(2)	(4)	W	W	(4)	(3)	(4)	(4)	5	5		(5)	(4)
5	(2)	(4)	W	W	(4)	(2)	(4)	5	(3)	(4)	X	(5)	(5)
6	(2)	(3)	W	W	(3)	(2)	(4)	(4)	(3)	(4)	X	(6)	(4)
7	(4)	(3)	W	W	(4)	(3)	5	(4)	(4)	(4)	X	(4)	(4)
8	(3)	(4)	W	W	(4)	(3)	5	5	(4)	(4)	X	(4)	(4)
9	(3)	5	W	W	(4)	(3)	5	5	(3)	(4)	X	(4)	(4)
10	(3)	5	W	W	(4)	(4)	5	5	(3)	(4)	X	(4)	(4)
11	(3)	(4)	W	W	(4)	(3)	5	5	(4)	(4)	X	(4)	3
12	(4)	5	U		5	(4)	5/6	6	(4)	(4)		3	3
13	(4)	6			5	5	6	6	5	5		3	3
14	5	7			6	6	6	7	5	5		2	2
15	6	7			6	6	7	7	6	5		2	3
16	5	6			6	6	6	6	6	5		3	3
17	(3)	6			6	5	6	6	5	5		(4)	3
18	6	7			6	5	6	6	5	5		(4)	2
19	6	8			6	6	6	6	6	7		1	2
20	6	7			6	6	7	7	5	7		2	1
21	6	5		W	7	6	6/(4)	(4)	5	6		(4)	(5)
22	(3)	5	W	W	(4)	(3)	6	5	(4)	(4)	X	(4)	3
23	(2)	5	W	W	(4)	(2)	(4)	(4)	(4)	(4)	X	(5)	(4)
24	(3)	(4)	W	W	(4)	(3)	(4)	(4)	(4)	(4)	X	(5)	(4)
25	(3)	5	W	W	(3)	(4)	(4)	(4)	(4)	(4)	X	(4)	(4)
26	5	6	W	W	(4)	(3)	5	6	(4)	(4)	X	3	3
27	5	6	U	U	5	(4)	5	6	(4)	(4)	X	3	3
28	(4)	7	U		5	5	6	7	5	5		1	2
29	6	7			6	5	6	7	5	5		1	2
30	6	6			6	5	6	5/(4)	5	5		3	(5)
31	(2)	5	W	W	(4)	(3)	5	5	(3)	(3)	X	(6)	(4)
Score:													
P					10		16		7	3			
S					21		25		18	16			
H			25		10		4		13	10			
(M)					8		2		3	5			
M			3		1		1		3	4			
(0)					1		2		0	0			
0			11		0		0		2	2			
G			23		11		22		10	10			

Scales:

Q-scale of Radio Propagation Quality

(1) - useless
(2) - very poor
(3) - poor
(4) - poor to fair
5 - fair
6 - fair to good
7 - good
8 - very good
9 - excellent

K-scale of Geomagnetic Activity

0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis

Symbols:

W- disturbed; U- unsettled; N- normal, left blank in Table; ( ) broadcast for one quarter day. X- probable disturbed date.

Scoring:

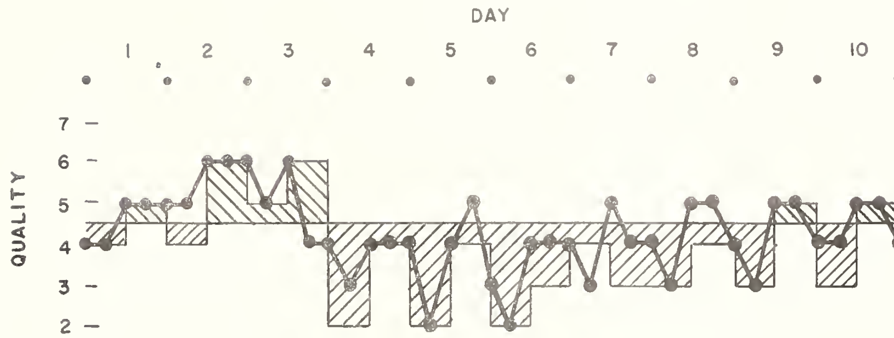
P - Perfect forecast; observed equal to forecast
S - Satisfactory forecast; P plus other times correctly designated as disturbed or quiet, within one grade
H - Storm (Q≤4) hit, except (M)
(M)- Storm hit, severity underestimated by two grades or a 5 forecast for Q=4 day
M - Storm missed
(O)- Overwarning on observed fair day
O - Other overwarnings
G - Good (quiet) day forecast

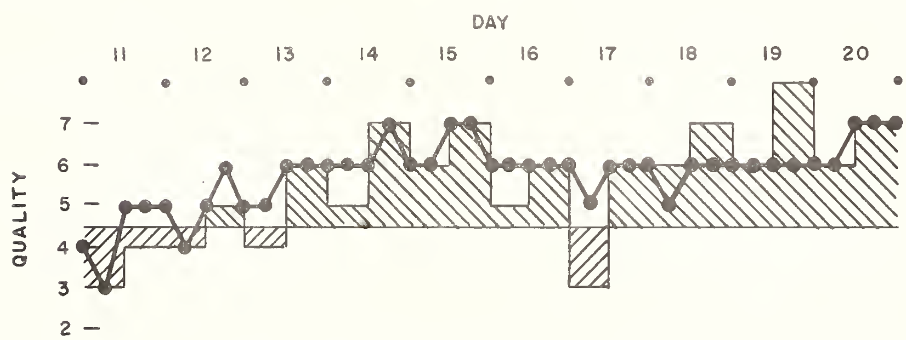
Note: See above for scoring legend, scales and symbols; see text for scoring conventions and other information.

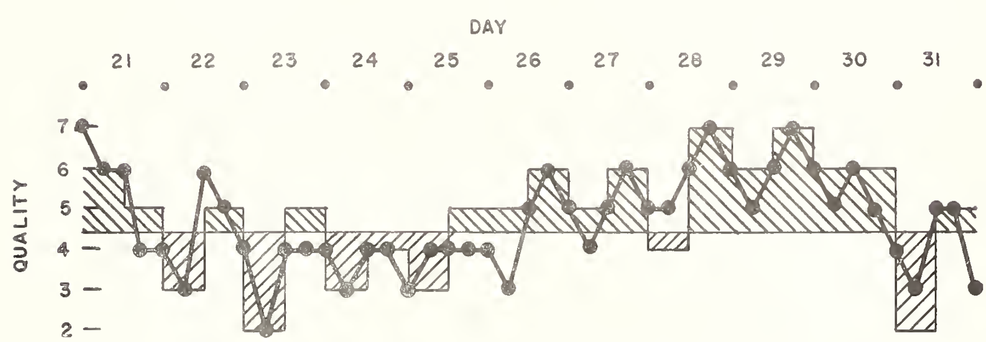
Table 73b

Short Term Forecasts--March 1952

observed disturbance | observed quiet | forecasts







Advance Forecasts (1 to 3/4 days ahead) -- March 1952

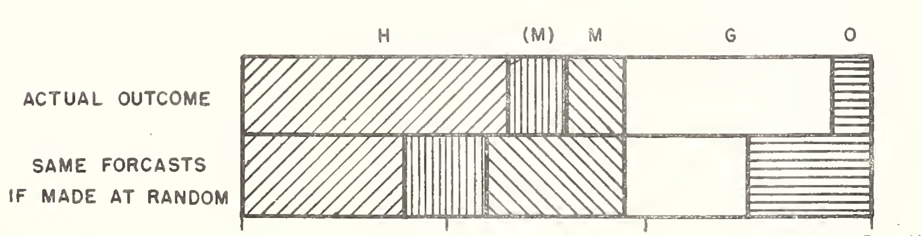


Table 74a

Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings, Short-Term and Advance Forecasts)

April 1952

Day	North Atlantic Quality figure		CRPL Warning WWV Broad-cast		Short-term forecasts issued about one hour in advance of 12-hour period, UT:				Advance forecasts (J-reports) for whole day; issued in advance by:			Geomag-netic K Ch	
	Half Day UT		Half Day UT		00 to 12	06 to 18	12 to 24	18 to 06	1 to 3/4 days	4/5 to 7 days	8 to 25 days	Half Day UT	
Apr	(1)	(2)	(1)	(2)								(1)	(2)
1	(3)	5	W	W	(3)	(2)	(4)	(4)	(3)	(3)	X	(4)	(4)
2	(3)	5	W	W	(4)	(3)	(4)	5	(3)	(3)	X	(5)	(5)
3	(2)	(4)	W	W	(4)	(3)	(4)	(4)	(3)	(4)	X	(6)	(4)
4	(3)	5	W	W	(3)	(2)	(4)	(4)	(3)	(4)	X	(5)	(5)
5	(2)	5	W	W	(4)	(3)	5	(4)	(3)	(4)	X	(5)	(4)
6	(2)	5	W	W	(4)	(2)	5	5	(4)	(4)	X	(5)	(4)
7	(3)	6	W	W	(4)	(3)	5	5	(4)	(4)	X	(5)	(4)
8	(3)	5	W	W	(4)	(4)	5	5	(4)	5		(4)	(4)
9	(4)	5	W	W	(4)	(4)	5	5	(4)	5		(4)	3
10	(3)	6	W	W	(4)	(3)	5	5	(4)	5		(5)	3
11	5	7	U	(U)	5	5	6	6	6	6		3	2
12	6	7			6	5	6	6	6	6		3	2
13	5	6			6	5	6	6	5	5		3	2
14	(4)	7			6	5	6	6	5	5		2	3
15	(4)	6			6	5	6	6	6	6		3	3
16	5	6			6	(4)	6	6	6	6		(4)	3
17	(4)	6	U	(U)	5	(4)	6	6	5	(4)	X	(4)	2
18	6	6			6	6	7	5	(4)	(4)	X	1	3
19	5	6	U		(4)	(4)	6	6	(4)	(4)	X	3	(4)
20	(4)	7	U		5	(4)	6	6	(4)	(4)	X	3	2
21	5	(4)		W	6	5	7/(3)	(3)	(4)	(4)	X	(4)	(7)
22	(2)	(4)	W	W	(3)	(2)	(4)	5	5	5	X	(5)	3
23	(3)	6	W	(W)	(4)	(3)	5	6	(4)	5		(4)	3
24	(4)	6			5	5	6	7	5	7		2	3
25	5	7			5	5	7	6	6	7		2	2
26	5	6			5	5	7	7	5	5		2	2
27	6	7	U		5	5	6	6	(3)	(3)	X	2	2
28	6	6	W	W	5	(4)	5	5	(3)	(3)	X	(4)	3
29	(4)	5	U	U	5	5	5	5	(3)	(3)	X	(5)	(5)
30	(2)	(4)	W	W	(4)	(2)	(4)	(4)	(4)	(3)	X	(5)	(4)
Score:													
P					8		15		7	7			
S					19		26		19	15			
H			23		9		3		13	9			
(M)			0		8		0		5	5			
M			3		2		1		2	6			
(O)					1		3		0	0			
O			15		0		0		4	4			
G			19		10		23		6	6			

Scales:

Q-scale of Radio Propagation Quality

(1) - useless
(2) - very poor
(3) - poor
(4) - poor to fair
5 - fair
6 - fair to good
7 - good
8 - very good
9 - excellent

K-scale of Geomagnetic Activity

0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis

Symbols:

W- disturbed; U- unsettled; N- normal, left blank in Table; ( ) broadcast for one quarter day, X- probable disturbed date.

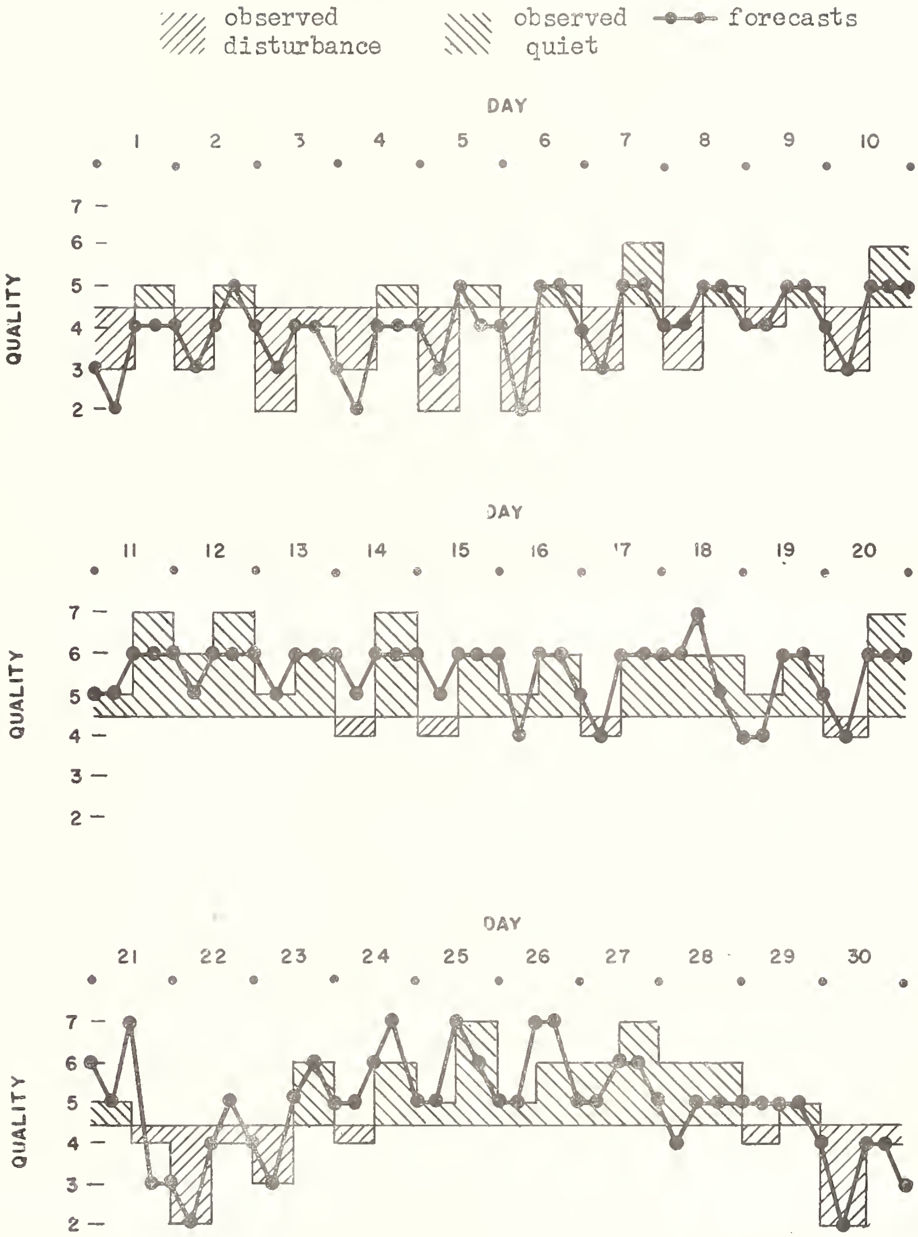
Scoring.

P - Perfect forecast; observed equal to forecast
S - Satisfactory forecast; P plus other times correctly designated as disturbed or quiet, within one grade
H - Storm ($Q \leq 4$) hit, except (M)
(M)- Storm hit, severity underestimated by two grades or a 5 forecast for Q=4 day
M - Storm missed
(O)- Overwarning on observed fair day
O - Other overwarnings
G - Good (quiet) day forecast

Note: See above for scoring legend, scales and symbols; see text for scoring conventions and other information.

Table 74b

Short Term Forecasts--April 1952



Advance Forecasts (1 to 3/4 days ahead) -- April 1952

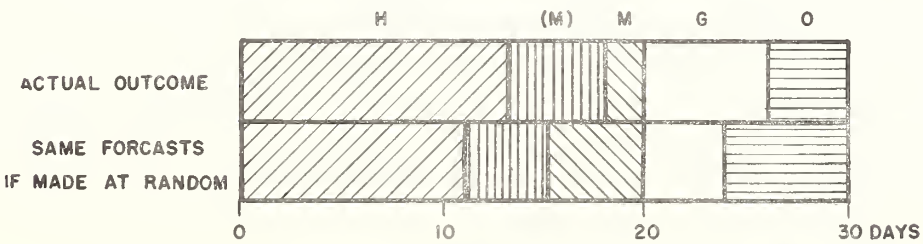


Table 75a

Coronal observations at Climax, Colorado (5303A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 2.0	X	X	X	X	-	-	-	-	-	-	-	-	-	-	4	5	13	6	4	5	5	7	6	10	5	4	5	4	4	4	4	X	X	X	X	X	X
3.0	-	-	-	-	-	-	-	-	3	3	4	3	3	3	5	8	9	5	4	3	5	8	9	8	6	5	5	6	6	6	6	5	3	-	-	-	-
3.7	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	4	4	8	18	13	8	6	4	4	5	4	4	5	3	3	-	-	-	-
4.7	-	-	-	-	-	-	-	3	3	3	3	-	-	-	-	3	3	4	3	3	6	14	9	5	6	3	3	2	2	3	4	3	3	-	-	-	-
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	8	9	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	10	12	6	4	3	3	3	3	3	4	4	4	3	-	-	-	-
10.7a	-	-	-	-	-	3	3	3	3	3	-	-	-	-	-	-	-	-	4	4	4	5	4	6	5	4	4	3	3	4	4	4	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	7	5	5	4	6	4	4	3	3	3	3	3	3	-	-	-	-	-
12.6a	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	4	4	3	3	3	4	4	-	-	-	-	-	-	-	-	-	-	-
13.6a	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	4	5	6	6	5	4	4	3	3	3	3	-	-	-	-	-	-	-	-	-	-
15.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	5	6	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	2	2	2	2	3	3	4	4	6	9	11	13	12	10	8	6	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
25.6a	-	-	-	-	-	-	-	-	-	3	3	3	3	3	5	6	9	10	9	6	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.6	-	-	-	-	-	-	-	3	3	3	3	3	3	3	4	6	6	9	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	-	-	-	-	-	-	-	3	4	3	3	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	4	5	3	3	-	-	-	-	-	-	-	-	-	-	-

Table 76a

Coronal observations at Climax, Colorado (6374A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 2.0	X	X	X	X	-	-	-	-	-	-	-	4	4	4	4	4	9	4	4	3	3	4	3	4	3	3	3	3	3	3	3	X	X	X	X	X	X
3.0	4	4	3	3	3	3	2	2	2	2	4	6	5	5	6	13	18	4	3	4	5	9	3	2	2	2	-	-	-	-	-	-	2	3	3	3	3
3.7	4	3	3	3	3	3	2	2	2	3	4	4	5	6	5	5	4	3	2	2	20	6	15	2	3	3	2	2	2	2	2	2	2	2	2	2	4
4.7	3	3	3	3	3	3	-	-	-	2	2	3	5	5	4	4	3	3	3	3	12	14	2	2	2	2	2	-	-	-	-	-	-	-	-	3	4
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	7	4	5	4	-	-	-	-	-	-	-	-	-	-	-	-	-
8.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	4	4	4	3	4	4	3	3	3	-	-	-	-	-	-	-	-
9.8	X	X	X	X	-	-	-	-	-	-	-	2	2	2	3	4	3	3	3	14	8	3	5	2	4	2	2	3	2	-	-	-	-	-	2	2	3
10.7a	3	3	3	3	3	3	-	-	-	-	2	3	2	3	4	4	4	4	4	5	6	3	4	3	3	3	3	3	3	-	-	-	-	2	2	2	2
11.7a	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
12.6a	X	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	2	2	2	2	3	3
13.6a	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	2	2	2	2	2	2	-	-	-	-	-	3	3	-	-	-	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-
15.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	12	6	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2
25.6a	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	2	3	2	2	2	2	2	2	2	2	2	-
27.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	5	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-
28.6a	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5	5	4	-	-	-	-	-	-	-	-	-	-		-	-	-
31.7a	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	8	5	4	3	3	3	2	2	2	-	-	-	-	-				

Table 77a

Coronal observations at Climax, Colorado (6702A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 2.0	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	4	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	2	-	-	-	-	-	-
8.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
10.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.6a	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
13.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
15.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
27.6	-	-	-	-	-	-	-	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
31.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-										

Table 75b

Coronal observations at Climax, Colorado (5303A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 2.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.0	-	-	-	-	3	3	4	4	4	4	3	3	3	3	3	6	10	15	18	23	15	12	6	4	3	3	3	3	3	-	-	-	-	-	-	-	-
3.7	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	4	6	12	17	11	12	12	6	4	3	3	3	3	3	3	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	3	3	3	3	3	-	-	-	3	3	5	5	4	6	9	9	6	5	5	4	6	8	3	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	7	15	14	15	12	9	9	5	5	5	5	4	3	5	6	6	3	-	-	-	-
8.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	6	10	15	18	16	13	16	10	8	6	3	5	5	5	5	3	3	-	-	-	-
9.8	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10.7	-	-	-	-	-	-	-	-	-	3	4	3	3	3	5	12	15	20	18	20	25	19	20	18	12	10	6	5	6	6	6	5	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	3	4	4	4	3	3	3	5	10	16	25	20	18	16	12	9	6	4	5	5	7	4	4	3	-	-	-	-
12.6	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	5	9	15	22	20	20	15	14	9	6	5	5	5	5	5	X	X	X	X	X	X
13.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	12	13	12	13	9	4	4	4	4	3	3	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	6	6	6	6	8	6	3	3	-	-	-	-	-	-	-	-	-	-	-
15.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	4	4	4	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-
24.6a	-	-	-	-	-	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.6a	-	-	-	-	-	3	3	3	3	3	3	3	3	5	5	5	5	6	6	5	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.6	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	5	16	23	14	6	4	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	3	3	3	3	3	6	12	17	16	15	10	5	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5	5	5	5	5	5	5	5	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7a	-	-	-	-	-	-	-	-	-	-	-	3	3	8	10	4	5	4	3	4	15	10	6	4	3	3	3	3	3	3	-	-	-	-	-	-	-

Table 76b

Coronal observations at Climax, Colorado (6374A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 2.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.0	3	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	2	16	16	2	2	5	4	4	4	3	6	5	3	3	3	3	3	3	3	4
3.7	4	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	16	4	3	10	6	5	4	4	5	5	3	3	3	3	3	3	3	4	4
4.7	4	4	4	3	3	3	3	3	3	3	3	3	4	3	6	3	3	4	15	6	5	15	2	-	-	-	-	2	3	3	3	3	2	3	3	4	3
7.6	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	5	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
8.6a	-	-	-	-	-	-	-	-	-	3	3	4	4	4	4	4	5	8	5	8	4	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	3	2	3	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10.7	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	6	12	16	4	5	3	4	3	3	3	3	3	3	-	-	-	-	3	3	3	3	3
11.7a	-	-	-	-	2	2	2	2	2	3	3	4	4	4	6	7	9	4	4	7	5	3	3	3	-	-	-	-	-	-	-	-	-	2	2	2	2
12.6	3	3	3	3	3	3	X	X	X	X	X	X	X	X	X	X	4	4	4	13	3	2	2	-	-	-	-	-	-	-	-	X	X	X	X	X	X
13.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	9	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	4	4	3	3	4	3	2	2	2	2	2	2	2	2	2	2	2
15.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-
24.6a	2	2	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	4	3	3	4	4	3	3	3	3	3	2	2	2	2	2	2	2	2	-
25.6a	-	-	-	-	2	2	2	2	3	4	3	2	2	2	2	2	2	2	3	2	2	4	5	5	5	3	3	3	2	2	2	2	2	2	2	2	2
27.6	-	-	-	-	2	2	2	2	2	2	2	2	2	3	3	3	3	18	8	3	2	2	2	2	3	3	3	3	3	3	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	8	15	2	2	2	2	3	3	3	5	3	3	2	2	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7a	-	-	-	-	-	3	3	3	3	3	3	2	2	2	8	17	4	6	4	2	21	15	4	3	3	3	3	-	-	-	-	-	-	-	-	-	-

Table 77b

Coronal observations at Climax, Colorado (6702A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 2.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	4	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	4	4	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	4	4	4	4	4	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	-	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	4	4	4	4	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-
12.6	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	X	X	X	X	X	X
13.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
15.6a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-
25.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	5	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-

Table 78a

Coronal observations at Sacramento Peak, New Mexico (5303A), east limb

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 1.8a	4	4	4	4	3	4	4	4	5	6	5	7	6	5	5	6	25	23	14	10	8	10	11	13	13	11	8	8	6	6	6	7	5	4	3	3	3
3.7a	4	5	4	4	5	4	5	5	4	4	5	4	3	3	3	4	4	4	5	5	5	18	14	10	5	3	3	3	4	4	3	3	4	4	3	3	3
4.8a	4	4	4	5	5	5	5	5	4	4	4	4	4	4	3	3	4	4	4	5	4	5	10	8	6	5	5	5	4	4	3	6	5	5	5	4	4
7.6a	2	-	-	-	2	2	2	2	3	8	10	10	8	4	4	5	4	4	5	3	4	8	10	11	14	8	5	4	4	4	4	4	4	4	3	2	2
9.7a	3	2	2	2	3	2	3	4	5	7	3	3	3	4	4	4	4	5	4	5	18	16	16	11	8	5	5	4	4	4	5	5	5	6	6	5	5
10.7	2	2	2	2	3	3	3	3	6	8	5	5	4	5	5	4	4	5	5	6	10	11	12	11	11	11	10	7	6	6	7	8	8	6	4	3	3
11.7	2	2	2	2	2	2	3	3	4	5	4	4	4	5	5	5	5	6	5	7	10	11	8	9	10	8	8	6	5	6	8	9	10	5	3	2	2
14.7	2	2	2	2	2	2	3	3	4	5	6	5	4	5	6	7	8	12	13	14	14	12	10	8	7	6	4	3	3	4	4	4	5	5	3	3	3
15.7a	3	3	3	3	3	3	4	4	5	5	4	5	5	5	5	6	6	6	6	6	5	5	5	5	4	4	5	5	5	4	4	5	5	5	4	4	3
20.0a	4	4	4	5	5	5	5	6	5	4	4	4	5	5	5	5	6	6	6	5	5	5	5	5	5	5	4	4	4	5	5	4	4	4	4	5	5
23.8	4	4	3	3	4	4	4	4	4	4	5	5	5	6	9	12	14	16	16	17	17	14	10	5	4	4	3	4	4	5	4	3	3	3	3	3	3
24.8	2	2	3	3	2	2	2	3	4	4	3	3	3	3	5	6	14	16	16	14	12	8	8	6	5	3	5	5	4	4	3	2	2	3	3	2	2
29.8a	2	2	2	2	3	3	3	3	3	4	4	5	5	5	4	5	5	5	5	5	5	6	7	8	7	5	4	5	6	6	6	5	4	3	3	2	2

Table 79a

Coronal observations at Sacramento Peak, New Mexico (6374A), east limb

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 1.8a	4	4	4	4	3	3	2	3	3	3	2	3	9	8	7	7	8	10	8	7	7	8	8	5	4	3	2	3	2	2	3	3	3	3	3	4	4
3.7a	3	3	4	4	3	2	2	2	2	2	2	3	4	4	5	5	5	3	3	3	3	12	11	3	-	2	2	3	3	2	2	2	3	2	2	3	3
4.8a	2	3	2	3	3	2	2	2	3	3	2	3	2	5	6	6	5	4	4	3	4	12	14	3	2	4	3	3	2	-	-	2	-	2	2	2	2
7.6a	5	4	5	5	4	4	3	3	3	3	2	-	3	5	7	6	5	4	5	6	8	13	14	13	11	12	13	10	8	5	3	2	2	2	2	2	2
9.7a	3	3	4	4	4	3	3	3	3	2	3	4	4	2	3	3	4	4	5	14	16	13	11	4	3	5	5	4	5	4	3	X	X	X	X	X	X
10.7	4	4	3	3	4	4	2	2	2	2	2	3	3	2	3	2	3	2	3	5	10	5	5	4	3	3	2	2	3	2	3	2	2	2	3	3	3
11.7	4	4	4	3	3	3	2	2	2	2	3	5	4	5	4	4	6	7	6	4	7	4	4	4	3	2	2	2	2	4	3	2	2	2	2	3	3
14.7	3	2	2	2	2	2	2	2	2	2	3	4	3	2	3	4	4	4	4	5	2	2	2	3	4	4	3	4	4	3	2	2	2	2	2	2	3
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.0a	-	-	-	-	-	-	-	-	-	3	3	3	3	3	4	4	5	5	4	5	5	5	6	6	5	5	5	4	4	4	4	4	4	4	4	3	3
23.8	4	X	X	X	X	X	X	3	3	3	4	4	3	3	3	4	3	3	4	4	10	14	8	5	5	3	4	4	3	3	3	4	3	3	3	4	4
24.8	2	3	3	2	3	3	2	2	2	2	2	2	2	2	3	2	3	3	2	2	5	8	10	5	2	4	4	4	2	2	2	2	2	2	2	2	2
29.8a	4	4	3	2	3	3	3	3	3	3	2	3	4	4	4	4	3	3	5	5	8	5	4	3	3	2	2	3	4	3	2	3	2	2	2	3	3

Table 80a

Coronal observations at Sacramento Peak, New Mexico (6702A), east limb

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 1.8a	-	-	-	-	-	-	-	2	3	2	3	3	3	3	3	3	4	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-
4.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.0a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.8	X	X	X	X	X	X	X	-	3	3	3	3	3	3	3	4	4	5	5	4	4	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	-	-	3	2	2	2	2	3	3	3	3	3	4	4	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 78b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 1.8a	3	3	2	2	2	3	5	7	5	3	3	3	3	3	4	5	8	11	16	15	14	13	11	7	4	3	3	4	3	3	3	3	3	3	5	5	4
3.7a	3	3	5	5	5	5	5	5	4	4	4	3	3	3	3	4	5	11	14	13	11	12	12	5	4	3	3	3	3	4	4	3	3	3	4	4	4
4.8a	4	5	4	5	5	5	5	6	5	5	5	4	5	6	5	5	5	5	5	5	6	5	6	7	6	5	6	6	5	6	6	5	5	5	4	4	4
7.6a	2	3	2	2	3	3	3	3	3	3	3	3	3	X	X	5	8	11	14	20	23	26	18	16	16	X	X	X	X	11	11	14	16	11	2	2	2
9.7a	5	4	4	4	4	5	5	5	5	4	4	4	5	5	5	5	11	20	25	23	23	18	16	20	14	8	5	5	5	8	11	12	11	5	3	3	3
10.7	3	2	2	2	2	2	2	2	2	2	2	3	5	5	5	8	14	16	28	23	25	23	28	22	16	11	8	5	11	11	12	13	6	4	4	3	2
11.7	2	2	2	2	2	2	3	3	3	3	3	4	6	6	4	5	6	14	20	32	44	41	36	23	20	14	11	8	8	11	12	11	8	3	3	3	2
14.7	3	3	–	–	2	2	2	2	2	3	4	5	5	5	5	6	6	7	11	12	13	14	14	13	11	6	5	5	5	7	5	3	2	2	2	2	2
15.7a	3	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3
20.0a	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	5	5	3	4	3	3	4	4	4	3	5	5	4	4	4	4	4	4	4
23.8a	3	4	4	3	3	3	3	3	3	4	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	5	5	5	5	4	5	4	4	4	4	4	4
24.8a	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	6	4	5	5	5	5	5	5	5	4	4	4	4	3	3	2	2
29.8	2	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	6	7	10	14	11	10	6	5	6	5	5	6	5	5	5	4	5	3	3	3	2

Table 79b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 1.8a	4	4	4	5	3	3	3	3	3	2	2	2	X	X	X	4	4	5	11	16	10	3	2	3	4	4	5	5	5	3	3	5	4	4	3	3	4
3.7a	3	3	3	3	3	3	3	3	3	3	3	2	X	X	2	2	3	5	11	11	5	3	10	5	5	5	4	3	3	3	2	2	3	3	3	3	3
4.8a	2	4	4	4	4	4	5	5	3	4	3	4	X	X	4	5	2	3	8	10	4	5	5	2	2	2	2	2	3	–	–	2	2	3	3	3	2
7.6a	2	3	3	3	2	2	3	3	2	2	2	X	X	X	X	8	5	3	6	8	6	5	4	3	2	X	X	X	X	2	–	–	–	–	4	4	5
9.7a	X	3	3	2	2	3	3	3	3	3	3	X	X	X	X	4	11	14	14	5	8	4	3	–	X	X	X	X	2	–	–	2	2	2	3	3	3
10.7	3	2	2	2	2	2	3	2	3	2	2	3	3	3	2	5	8	15	16	11	12	3	3	2	2	2	2	–	2	2	2	–	2	2	3	3	4
11.7	3	3	3	3	4	4	4	4	3	3	2	3	4	4	4	5	8	11	12	8	14	10	–	–	–	–	2	2	2	3	2	2	2	3	5	5	4
14.7	3	2	2	3	2	2	2	2	2	3	4	5	3	3	3	3	3	4	4	5	4	3	3	3	3	3	3	3	3	2	2	2	2	3	3	3	3
15.7a	–	–	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	–	–
20.0a	3	–	–	–	–	–	–	–	–	3	3	3	3	3	3	3	2	2	3	3	3	3	2	2	3	4	4	3	2	2	2	2	2	3	5	4	–
23.8a	4	3	3	3	3	4	3	3	3	3	3	4	4	4	4	3	3	4	3	4	3	4	3	4	4	3	3	3	3	3	2	2	2	3	3	4	4
24.8a	2	3	3	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	3	2	3	3	2	3	3	3	3	2	2	2	2	2	2	2	2	2
29.8	3	3	3	3	4	2	3	3	3	3	4	5	4	5	5	8	10	5	3	3	2	2	2	3	3	2	3	3	3	2	2	2	2	2	2	3	4

Table 80b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
May 1.8a	–	–	–	–	–	–	–	–	–	–	–	–	X	X	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3.7a	–	–	–	–	–	–	–	–	–	–	–	–	X	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4.8a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	3	2	–	–	–	–	–	–	–	–	–	–	–	–
7.6a	–	–	–	–	–	–	–	–	–	–	–	X	X	X	X	–	–	3	4	5	5	4	–	–	–	X	X	X	X	–	–	–	–	–	–	–	–
9.7a	X	–	–	–	–	–	–	–	–	–	–	X	X	X	X	–	–	3	5	5	5	4	4	3	X	X	X	X	–	–	–	–	–	–	–	–	–
10.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	4	4	4	5	4	4	4	3	2	3	–	–	–	–	–	–	–	–	–	–
11.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	3	3	4	4	4	4	3	3	2	2	–	–	–	–	–	–	–	–	–	–
14.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15.7a	–	–	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	–	–
20.0a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
23.8a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24.8a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
29.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 81

Zürich Provisional Relative Sunspot Numbers

May 1952

Date	R_{Z*}	Date	R_{Z*}
1	30	17	10
2	15	18	18
3	8	19	22
4	19	20	36
5	30	21	26
6	34	22	25
7	30	23	32
8	27	24	31
9	23	25	17
10	0	26	10
11	7	27	43
12	6	28	57
13	8	29	49
14	15	30	36
15	14	31	23
16	8	Mean:	22.9

*Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 82

American Relative Sunspot Numbers

April 1952

Date	$R_{A'}$*	Date	$R_{A'}$*
1	25	17	11
2	19	18	20
3	25	19	36
4	28	20	44
5	33	21	55
6	27	22	50
7	35	23	31
8	29	24	26
9	31	25	23
10	30	26	23
11	35	27	21
12	21	28	25
13	19	29	40
14	10	30	40
15	2		
16	5	Mean:	27.3

*Combination of reports from 28 observers; see page 10.

Table 83

Indices of Geomagnetic Activity for April 1952

Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1952	C	Values Kp three-hour interval 1	2	3	4	5	6	7	8	Sum	Final Selected Days
1	1.2	5-	5o	5-	5-	6-	5o	4o	2-	35+	Five
2	1.6	6+	5+	5+	7o	4+	5+	6+	6+	46+	Quiet
3	1.7	6o	6o	6+	7-	5-	6+	6-	6+	48o	
4	1.5	5+	4+	6-	5o	5o	4+	6+	6-	42-	12
5	1.4	5o	4+	6-	5o	5o	6-	5o	6-	41+	20
											25
6	1.5	6o	4+	4+	6-	4-	4o	5-	6+	39o	26
7	1.2	5o	4+	5+	4+	4-	4-	5-	4+	35+	27
8	1.3	5o	5-	4+	4o	4+	4-	5-	4+	35o	
9	1.1	5o	4-	4o	4o	3+	5-	4+	5o	34o	
10	1.0	7-	5o	4+	4o	3o	1+	3-	3-	30-	
11	0.3	3o	2+	3o	3o	3o	2-	2o	1o	19o	Five
12	0.3	4-	3-	2+	2o	1-	1-	3-	2o	17-	Disturbed
13	0.7	4-	5+	2o	3o	3-	2-	3o	2o	23+	
14	0.6	2-	1-	2-	3+	3-	4o	2+	3o	19+	2
15	0.8	3+	3o	3-	4-	5-	3+	3-	2-	25o	3
											21
16	0.8	3o	4+	5-	3-	3+	3+	3o	3-	27o	29
17	0.6	3o	5o	4o	3-	1+	1o	1+	1+	20-	30
18	0.9	0+	1o	1+	2o	3-	3+	4o	5o	20-	
19	1.2	4o	4-	3-	2o	4+	5-	5-	5-	31-	
20	0.4	2+	3o	2o	2-	1o	2-	1o	3o	16-	
21	1.8	3-	3+	4o	4o	8+	8o	7o	6+	44-	Ten
22	1.2	5-	5+	6-	5+	3o	3o	3-	3-	32+	Quiet
23	0.7	4-	4o	4-	4o	2o	3-	3o	2o	25o	
24	0.8	1+	1+	0+	1o	2+	4+	3-	4+	18-	11
25	0.2	2-	1+	1-	4-	3+	2+	1o	2-	16-	12
											14
26	0.4	1o	0+	1o	2-	2-	3-	3+	2+	14o	17
27	0.2	2o	1o	1-	1o	1+	1o	1o	3-	11-	20
28	1.1	4o	5+	4o	4+	4+	4o	4-	3+	33o	23
29	1.7	4+	6-	6+	4+	5+	7o	7o	7+	47+	24
30	1.6	7-	5+	5+	5+	5-	5+	5+	6+	44+	25
											26
Mean	0.99										27

Table 84

Sudden Ionosphere Disturbances Observed at Washington, D. C.

May 1952

No sudden ionosphere disturbances were observed during the month of May 1952.

Table 85

Sudden Ionosphere Disturbances Reported by Institut für Ionosphärenforschung, as Observed at Lindau, Harz, Germany

1952 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
April 22	1154	1216	München**, Lindau***	0.0	

*Ratio of received field intensity during SID to average field intensity before and after, for station München, 6160 kilocycles, 400 kilometers distant.
**Station München, 6160 kilocycles.
***Station Lindau, 1850 kilocycles, pulse transmitter and receiver at Lindau.

Table 86

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief, Cable and Wireless, Ltd., as Observed in England

1952 Day	GCT		Receiving station	Location of transmitters	Other phenomena
	Beginning	End			
April 22	1158	1220	Brentwood	Austria, Bahrein I., Barbados, Belgian Congo, Brazil, Canary Is., Chile, Eritrea, Greece, India, Malta, New York, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Thailand, U.S.S.R., Venezuela, Yugoslavia, Zanzibar	
22	1155	1220	Somerton	Ceylon, India	

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

GRAPHS OF IONOSPHERIC DATA

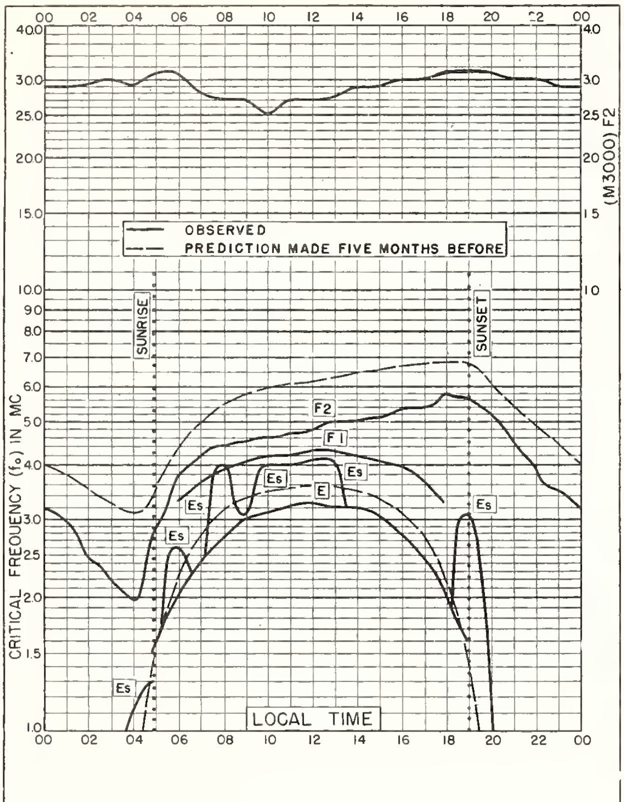


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W MAY 1952

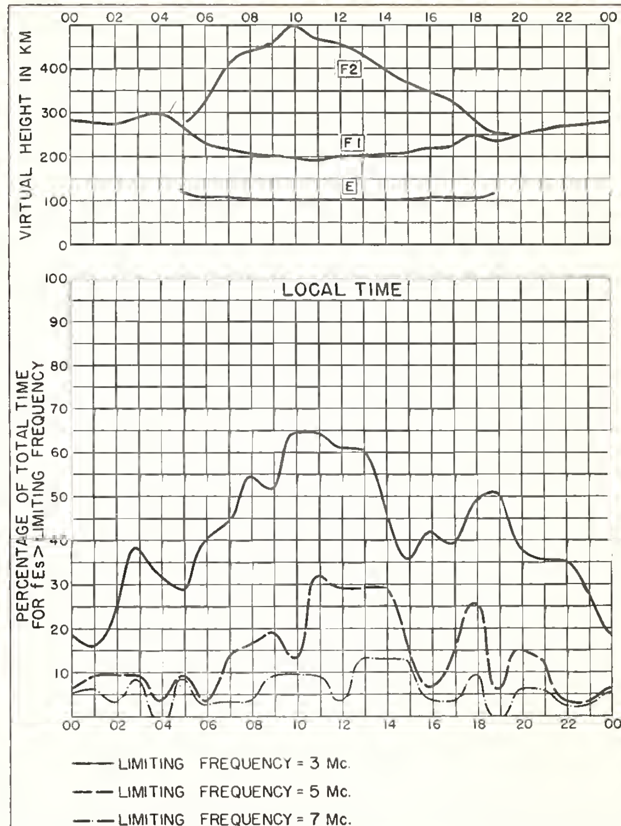


Fig. 2. WASHINGTON, D. C. MAY 1952

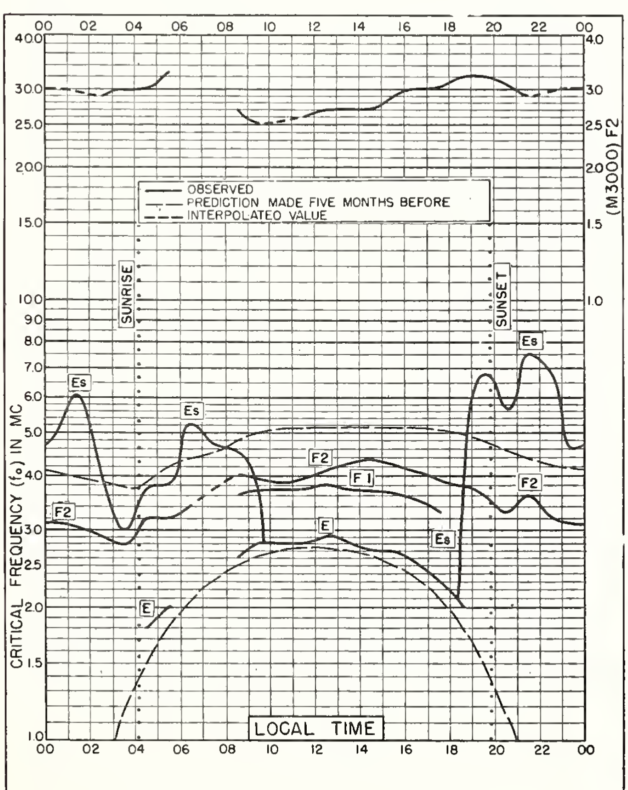


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W APRIL 1952

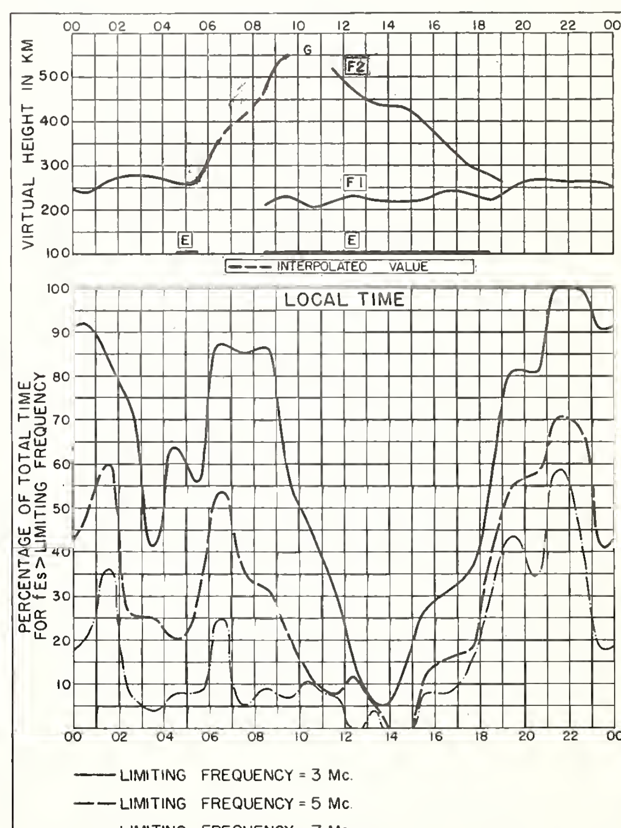


Fig. 4. POINT BARROW, ALASKA APRIL 1952

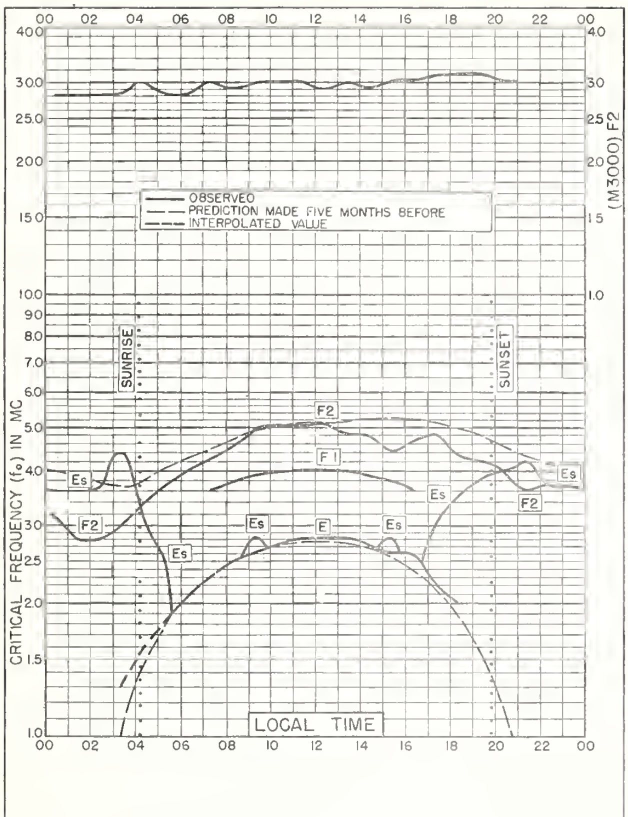


Fig. 5. TROMSO, NORWAY
69.7°N, 19.0°E APRIL 1952

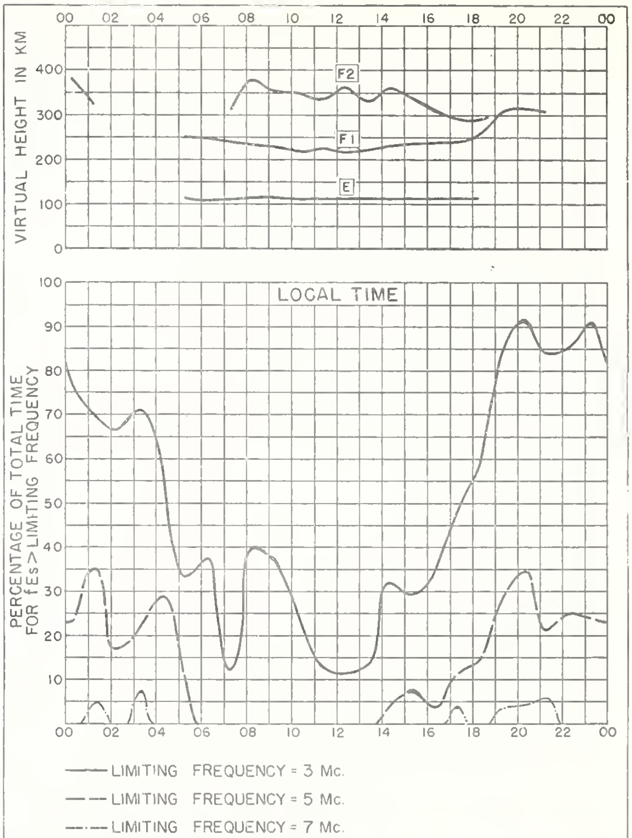


Fig. 6. TROMSO, NORWAY APRIL 1952

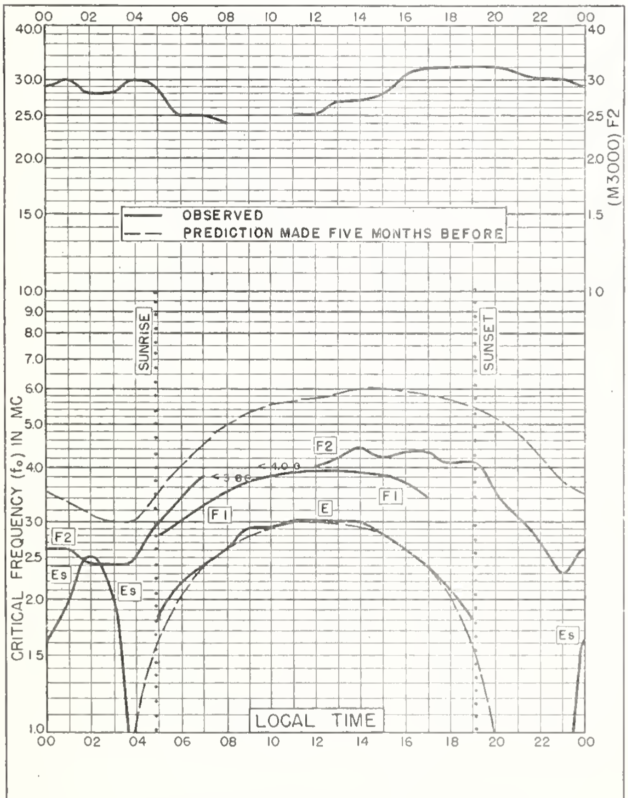


Fig. 7. ANCHORAGE, ALASKA
61.2°N, 149.9°W APRIL 1952

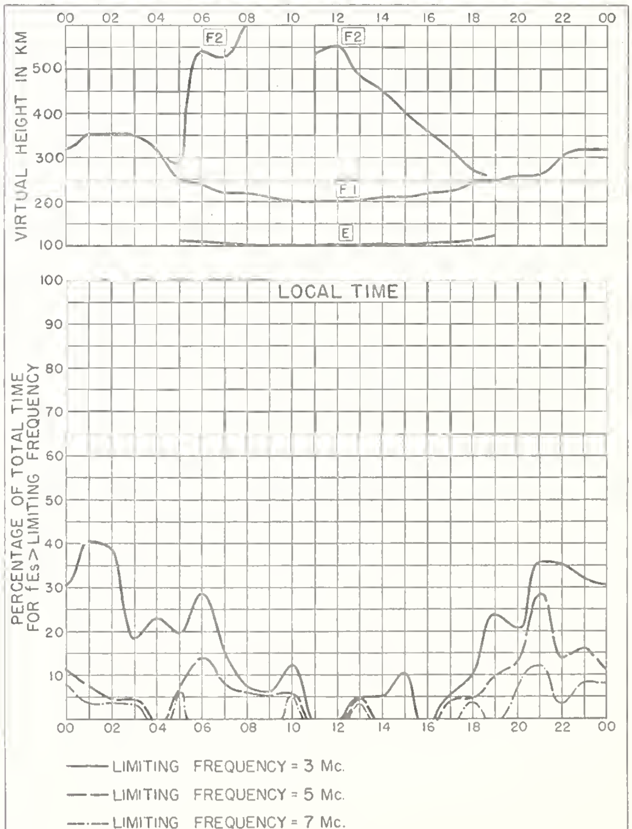


Fig. 8. ANCHORAGE, ALASKA APRIL 1952

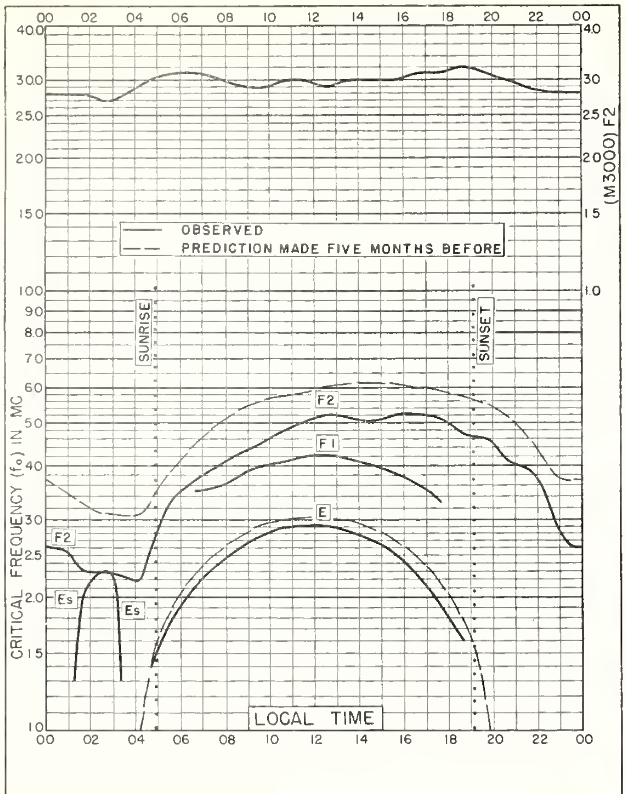


Fig. 9. OSLO, NORWAY
60.0°N, 11.1°E APRIL 1952

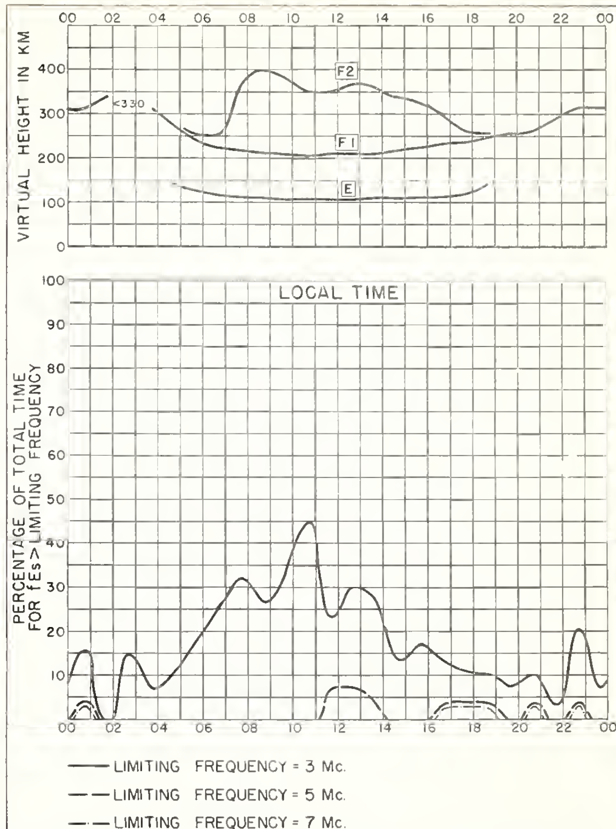


Fig. 10. OSLO, NORWAY APRIL 1952

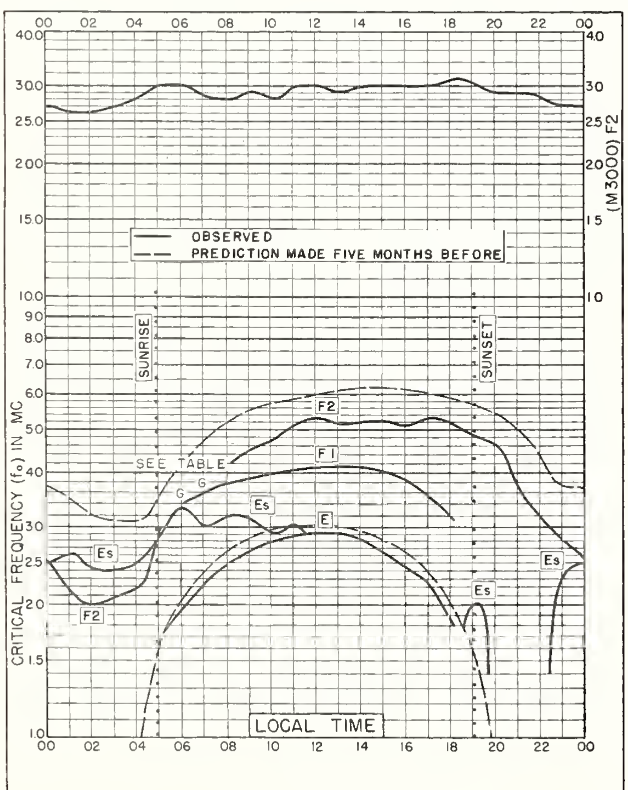


Fig. 11. UPSALA, SWEDEN
59.8°N, 17.6°E APRIL 1952

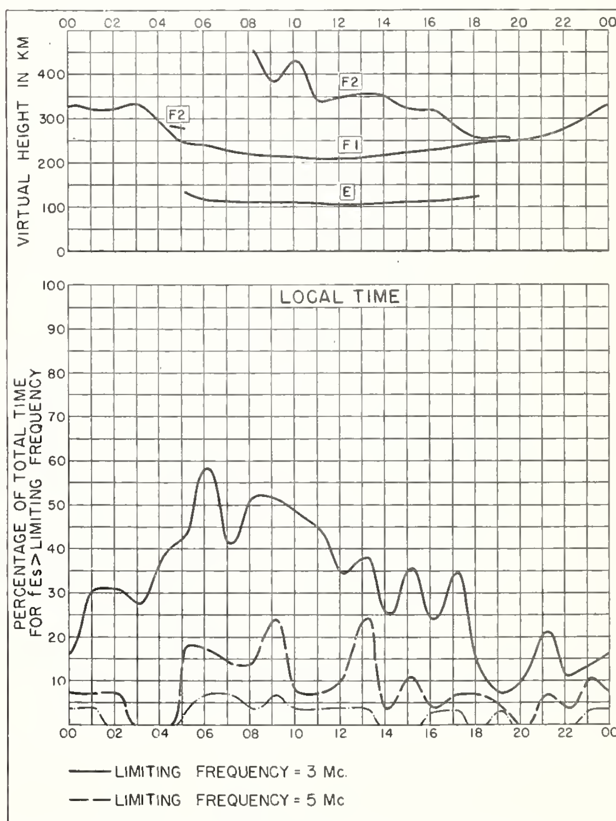


Fig. 12. UPSALA, SWEDEN APRIL 1952

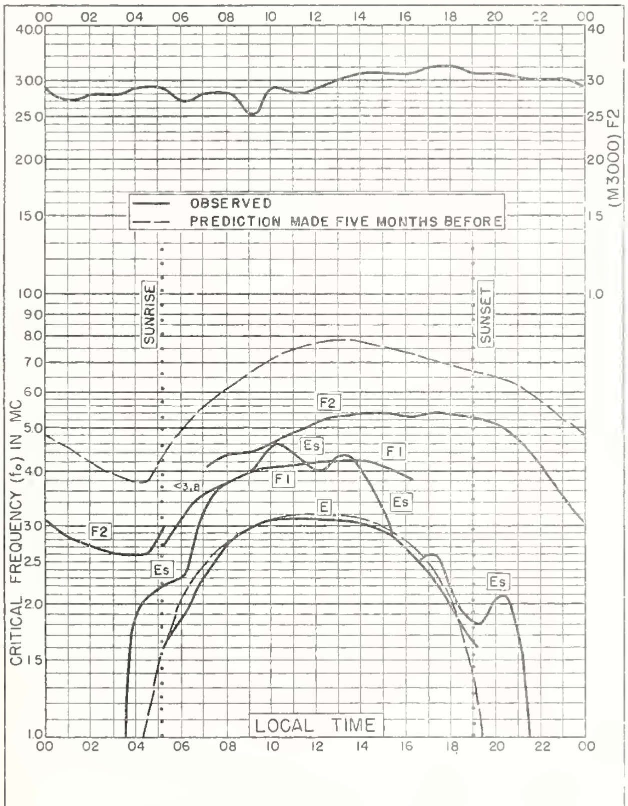


Fig. 13. ADAK, ALASKA
51.9°N, 176.6°W APRIL 1952

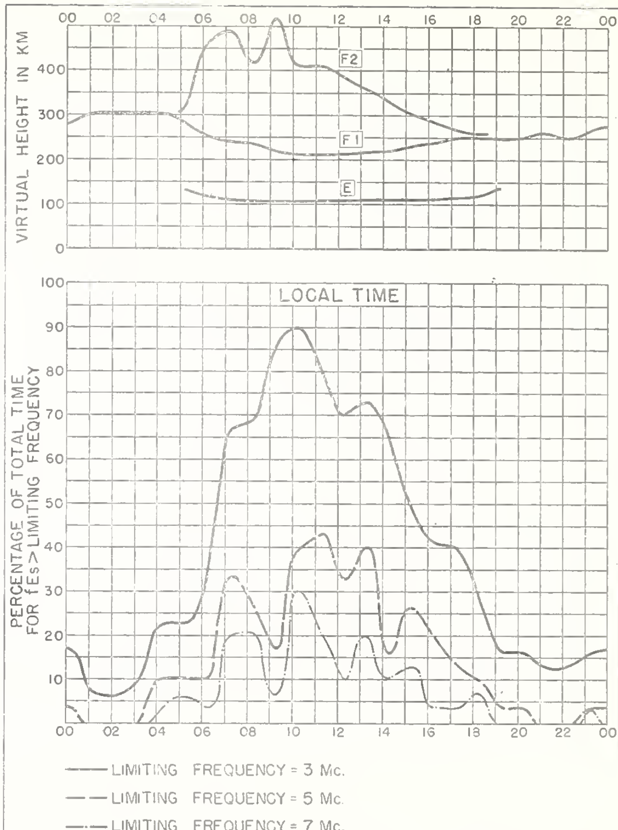


Fig. 14. ADAK, ALASKA APRIL 1952

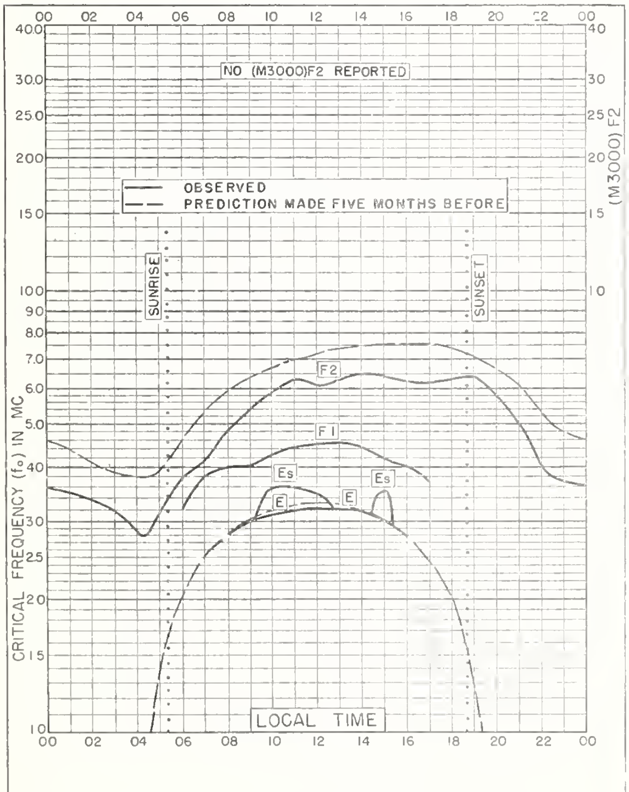


Fig. 15. GRAZ, AUSTRIA
47.1°N, 15.5°E APRIL 1952

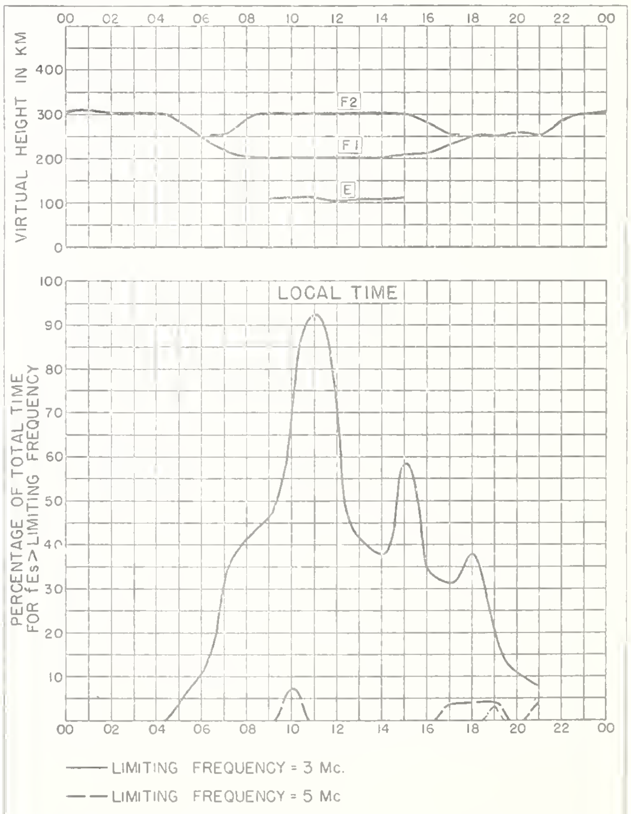


Fig. 16. GRAZ, AUSTRIA APRIL 1952

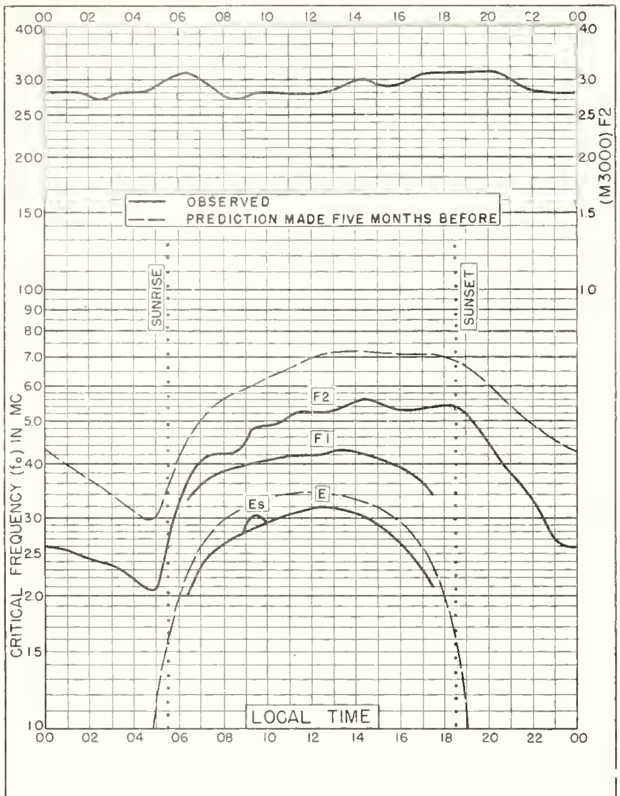


Fig. 17. BATAVIA, OHIO
39.1°N, 84.1°W APRIL 1952

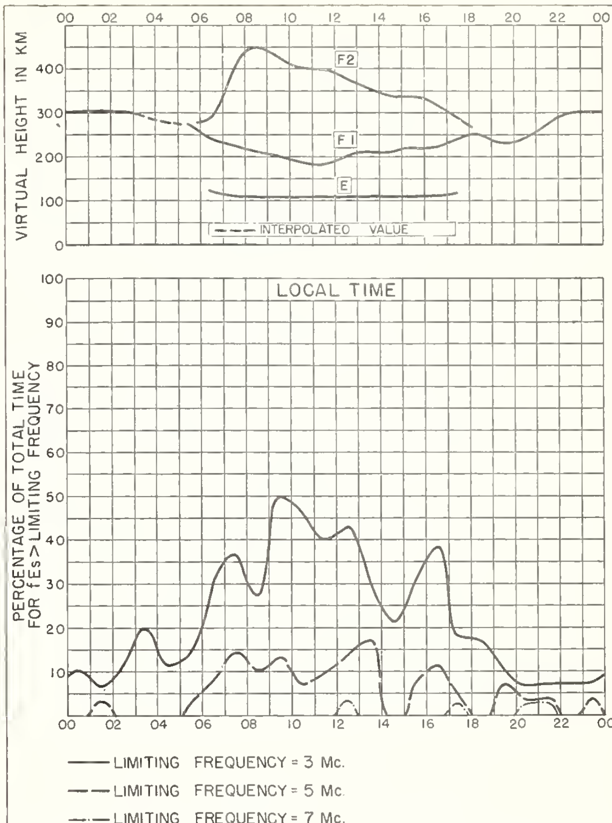


Fig. 18. BATAVIA, OHIO APRIL 1952

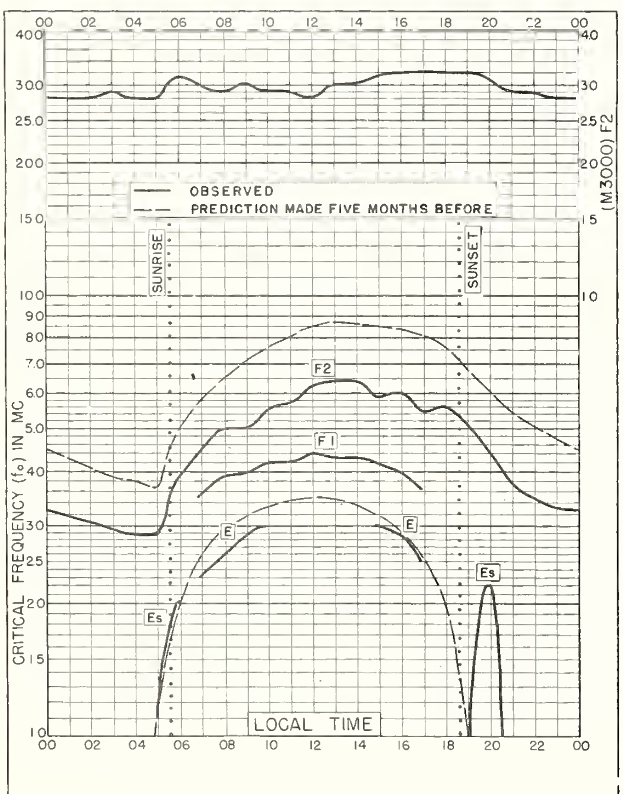


Fig. 19. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W APRIL 1952

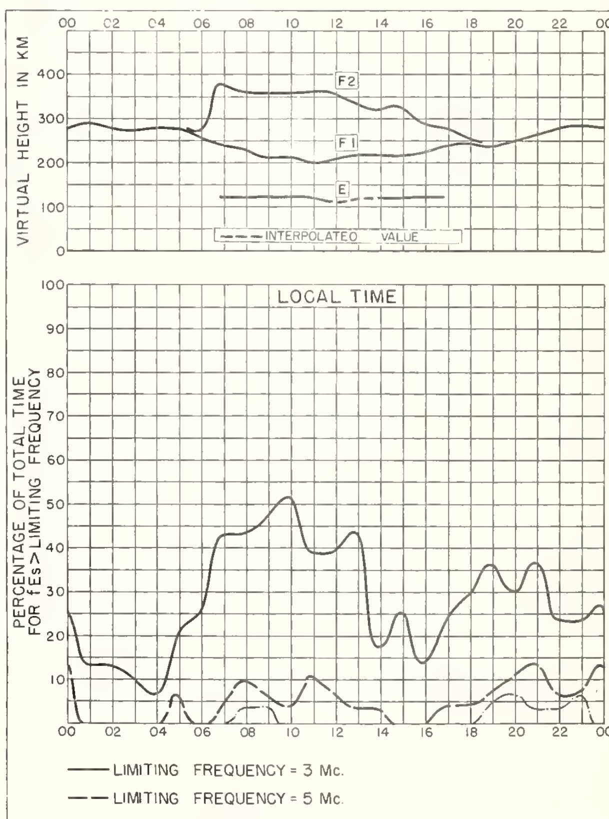


Fig. 20. SAN FRANCISCO, CALIFORNIA APRIL 1952

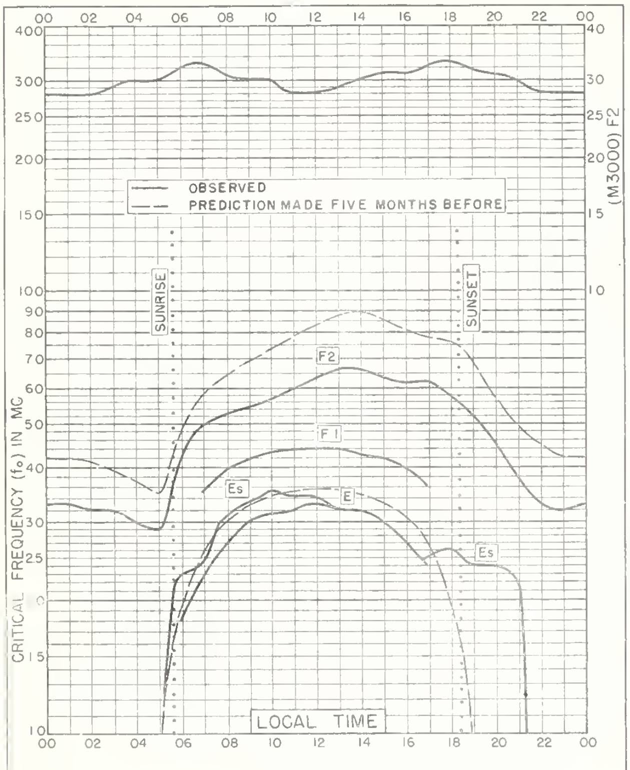


Fig. 21. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W APRIL 1952

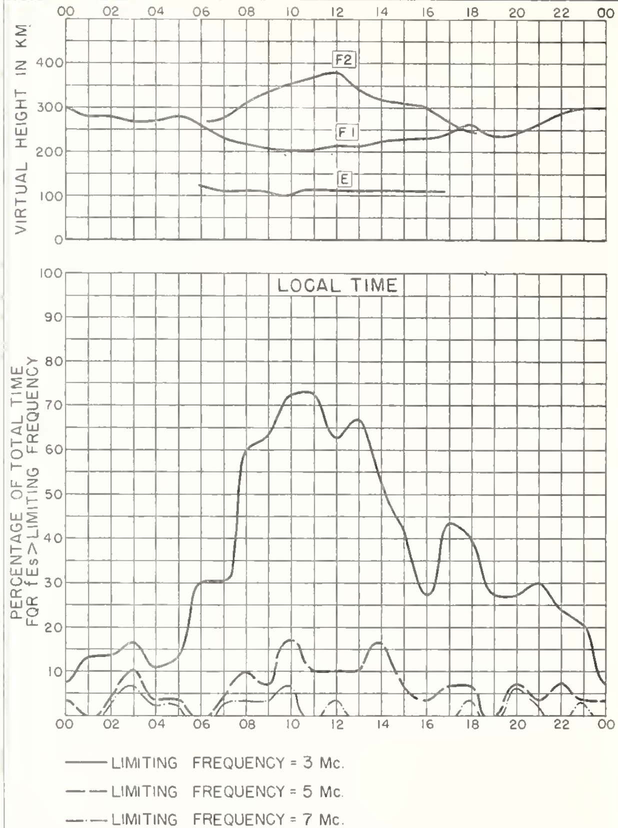


Fig. 22. WHITE SANDS, NEW MEXICO APRIL 1952

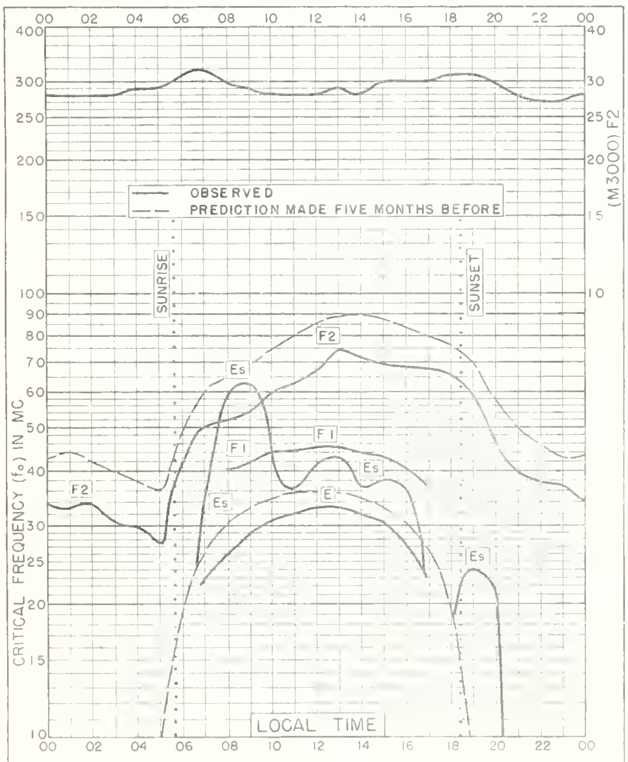


Fig. 23. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W APRIL 1952

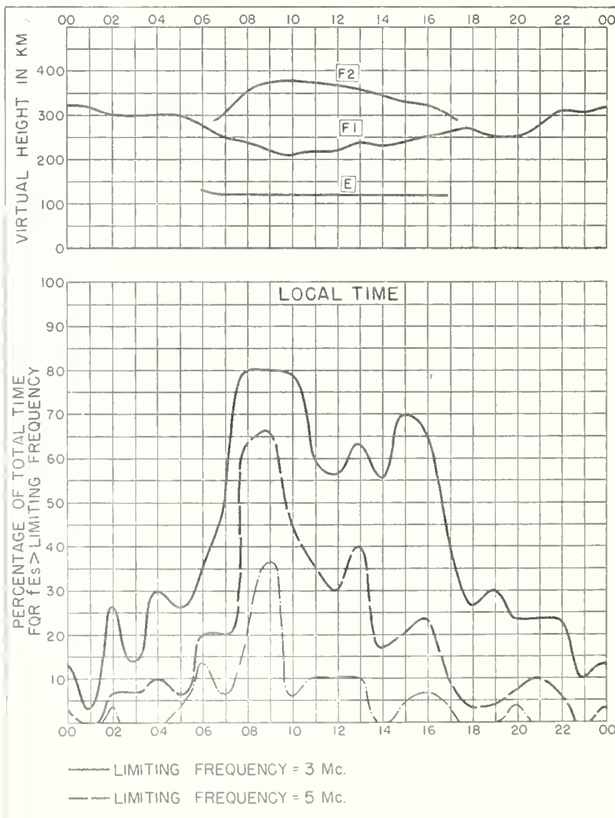


Fig. 24. BATON ROUGE, LOUISIANA APRIL 1952

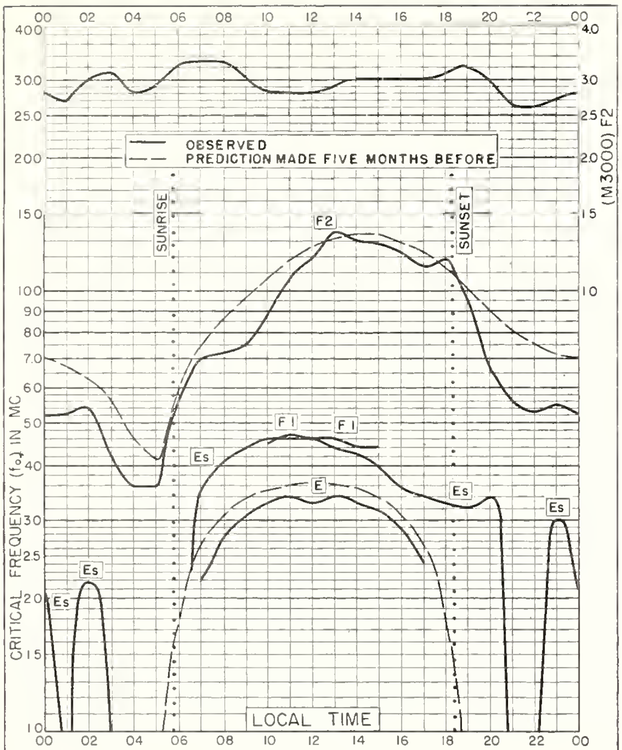


Fig. 25. OKINAWA I.
26.3°N, 127.8°E APRIL 1952

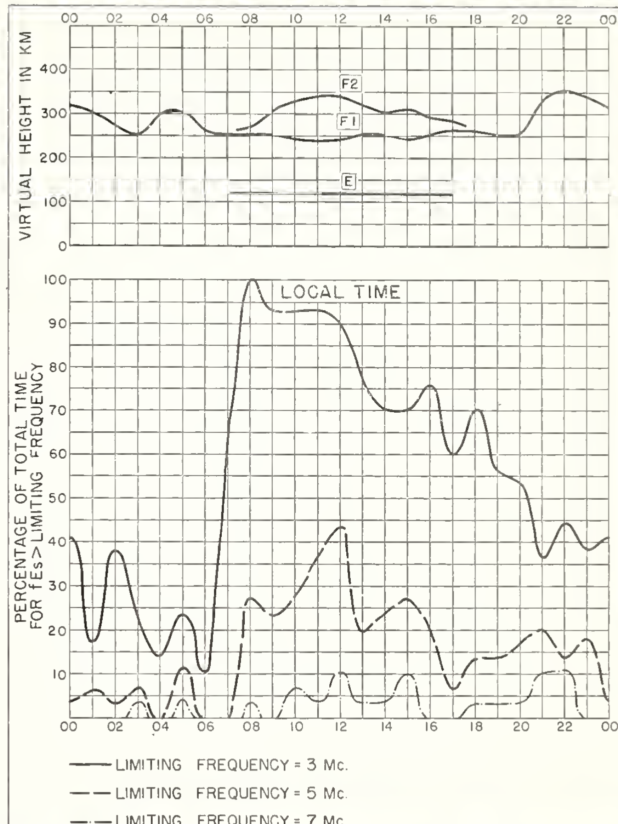


Fig. 26. OKINAWA I. APRIL 1952

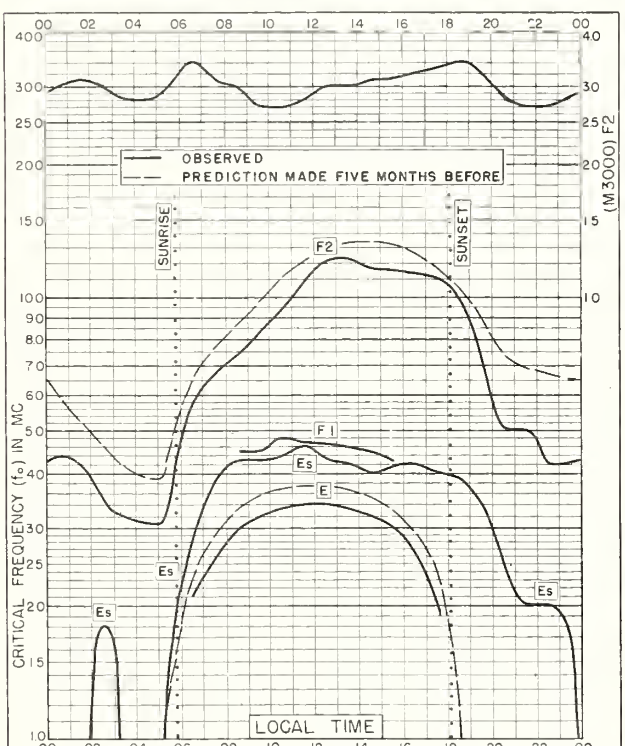


Fig. 27. MAUI, HAWAII
20.8°N, 156.5°W APRIL 1952

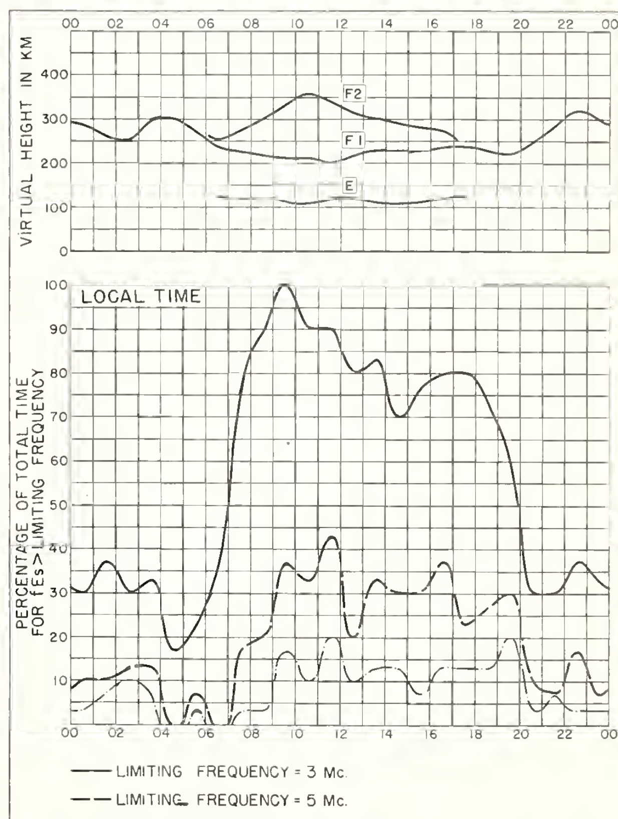


Fig. 28. MAUI, HAWAII APRIL 1952

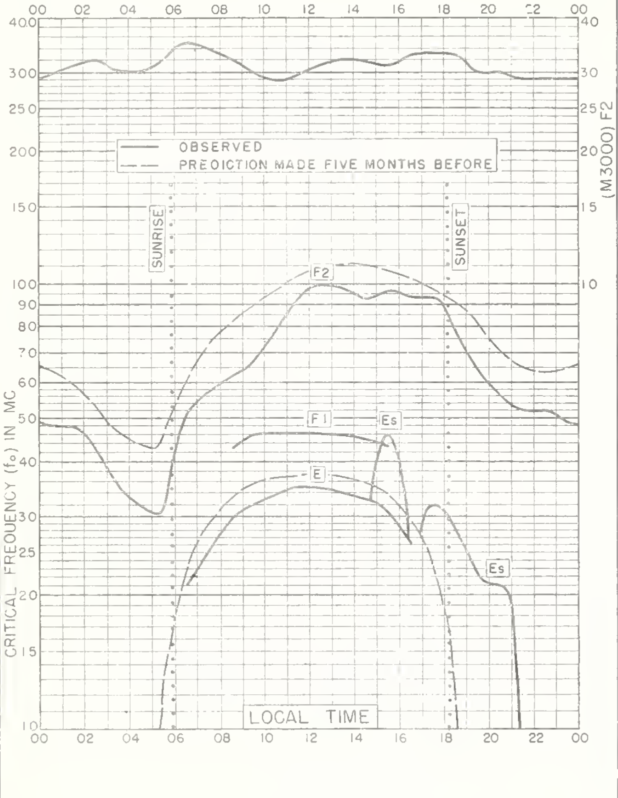


Fig. 29. PUERTO RICO, W. I.
18.5°N, 67.2°W APRIL 1952

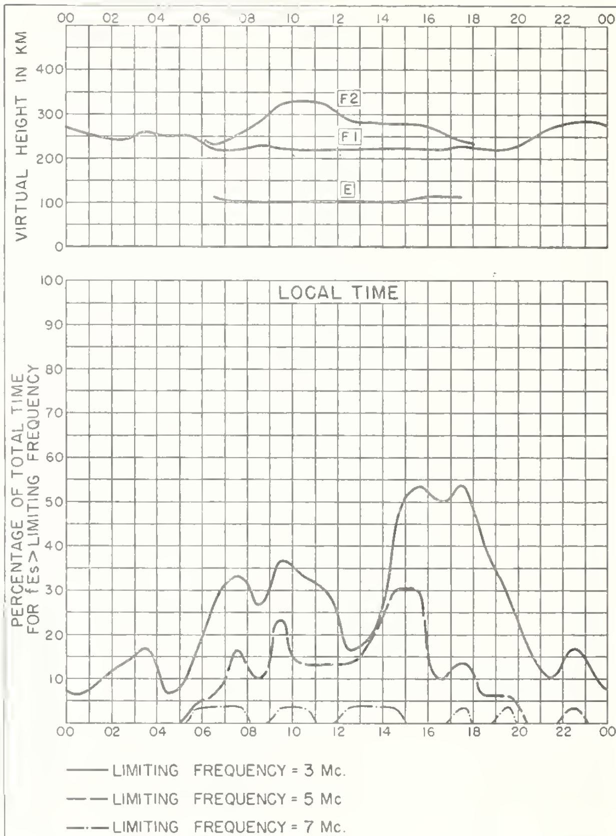


Fig. 30. PUERTO RICO, W. I. APRIL 1952

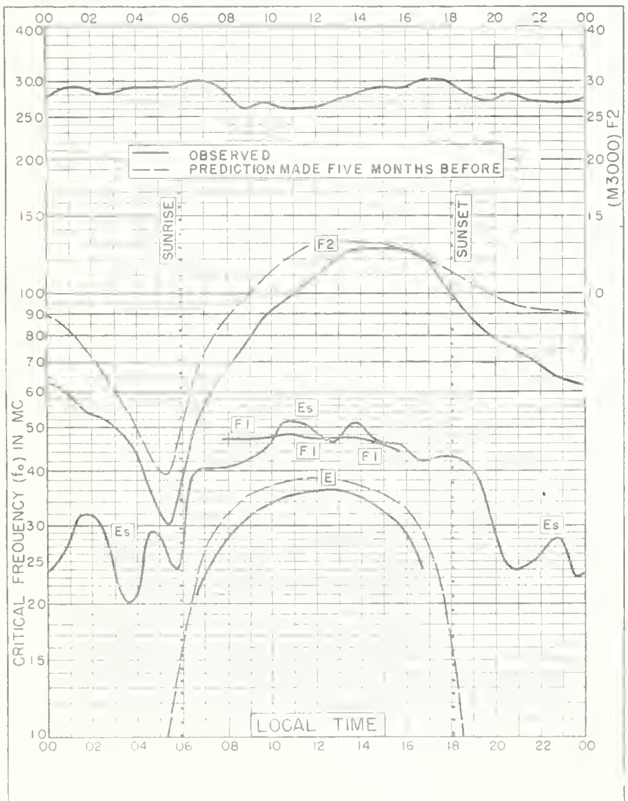


Fig. 31. PANAMA CANAL ZONE
9.4°N, 79.9°W APRIL 1952

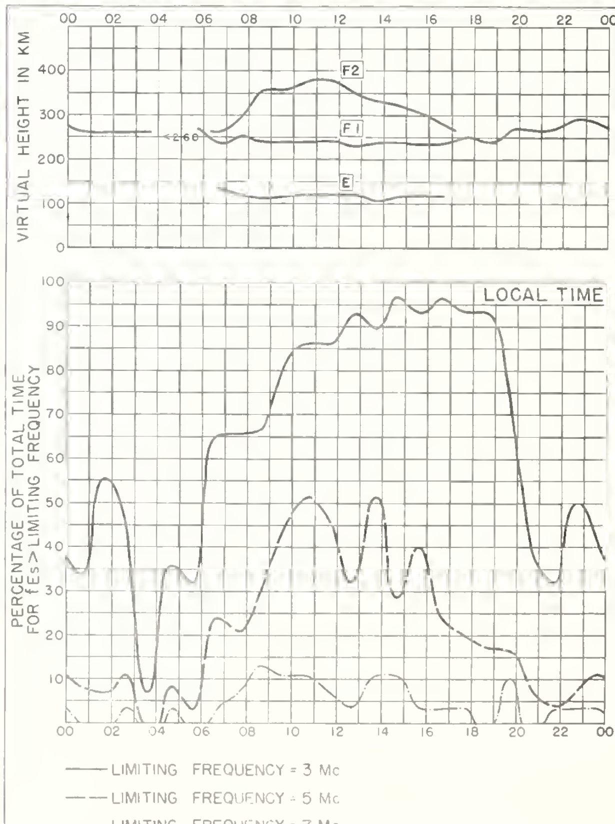


Fig. 32. PANAMA CANAL ZONE APRIL 1952

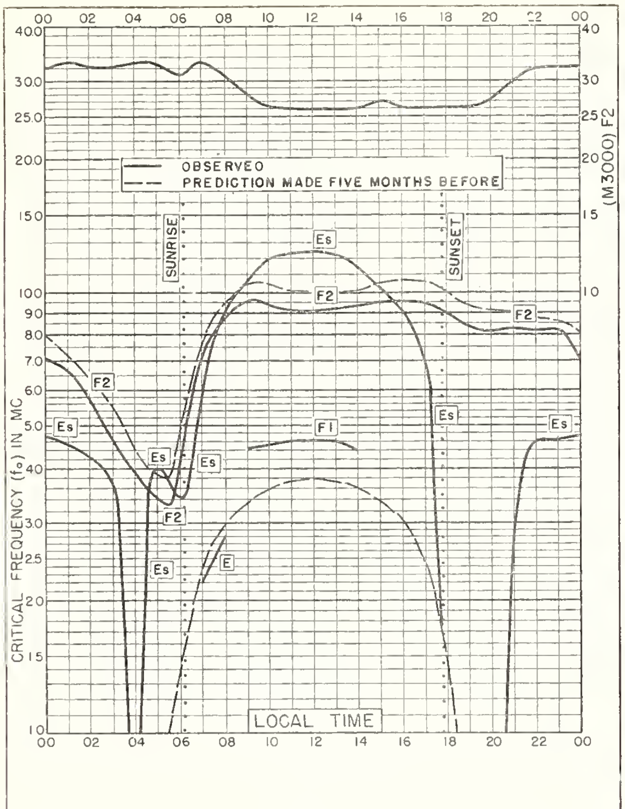


Fig. 33. HUANCAYO, PERU
12.0°S, 75.3°W APRIL 1952

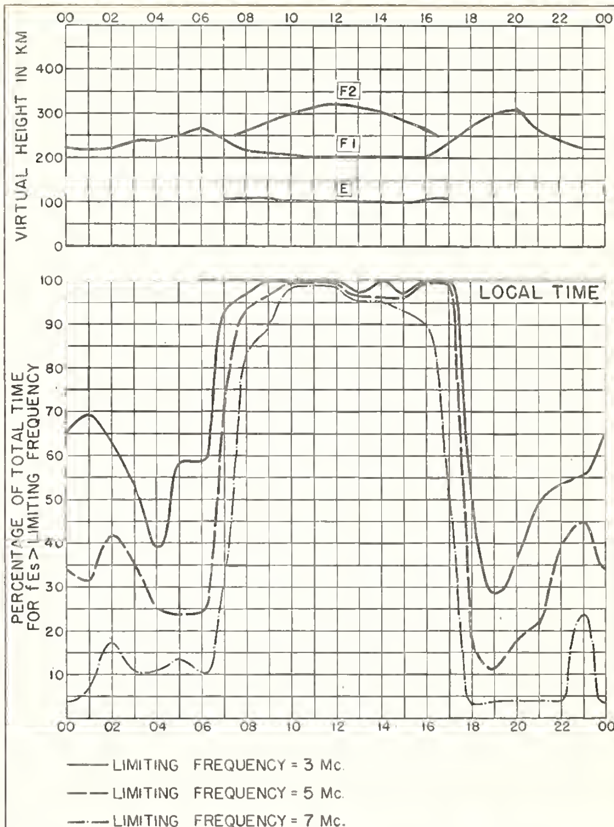


Fig 34. HUANCAYO, PERU APRIL 1952

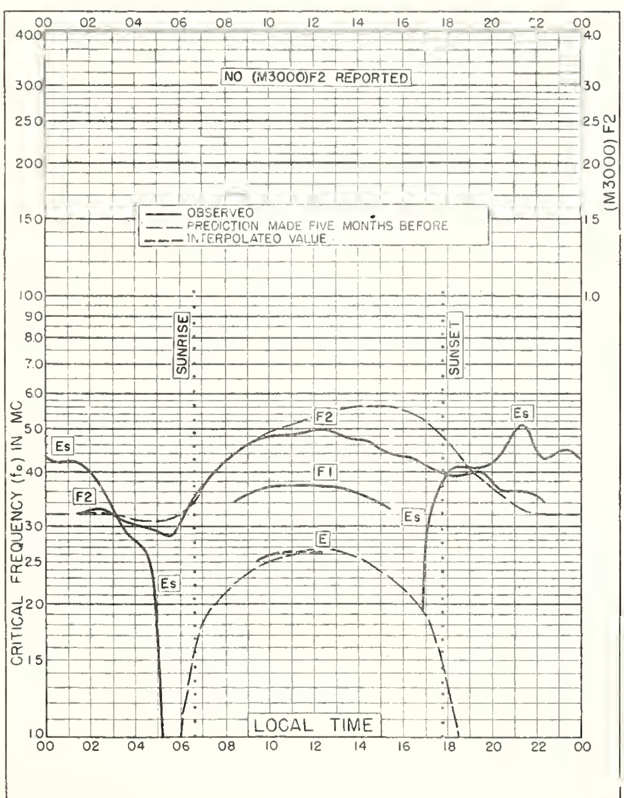


Fig. 35. KIRUNA, SWEDEN
67.8°N, 20.5°E MARCH 1952

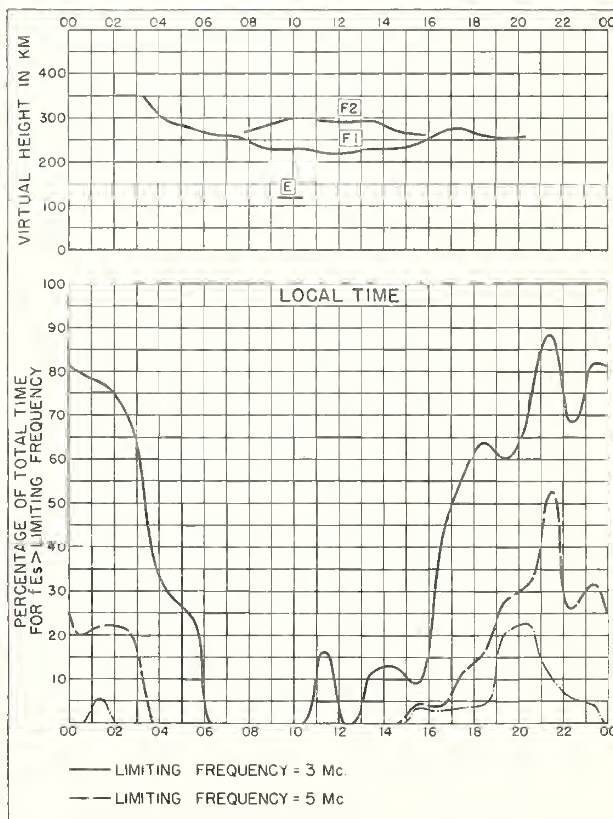


Fig. 36. KIRUNA, SWEDEN MARCH 1952

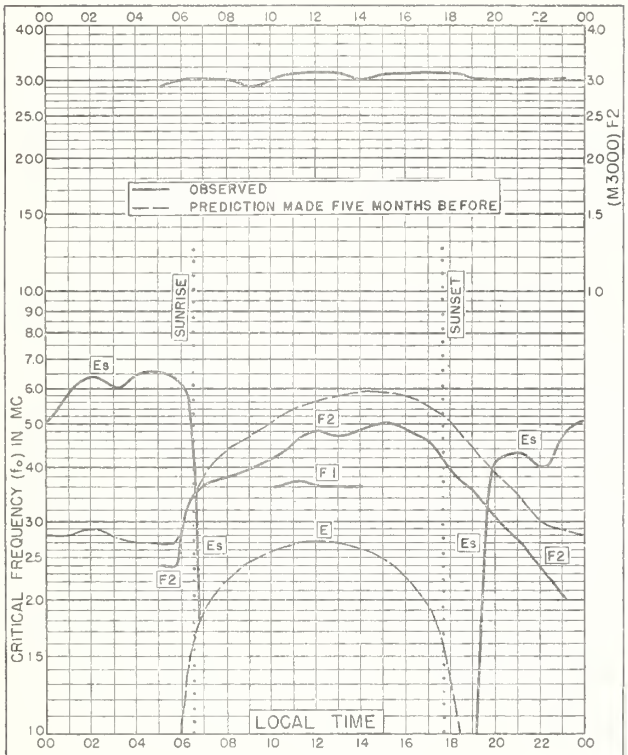


Fig. 37. FAIRBANKS, ALASKA
64.9°N, 147.8°W MARCH 1952

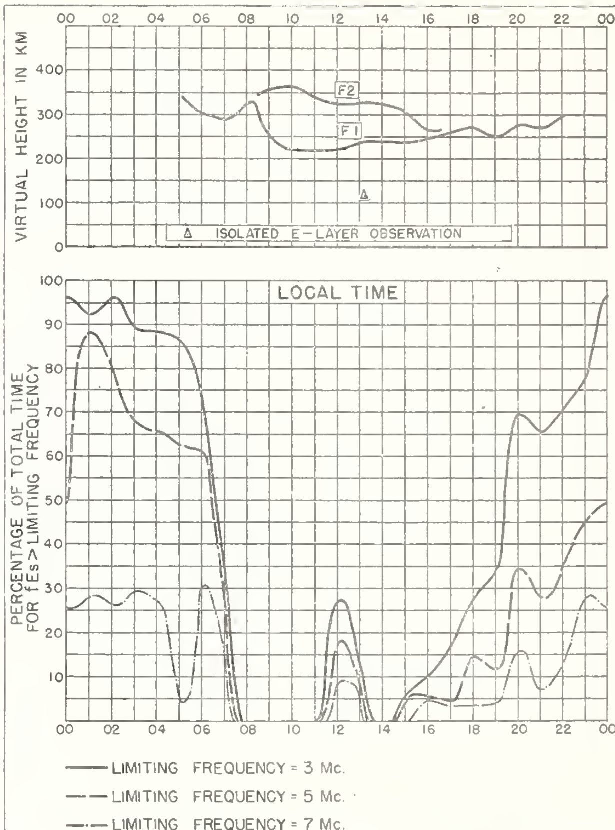


Fig. 38. FAIRBANKS, ALASKA MARCH 1952

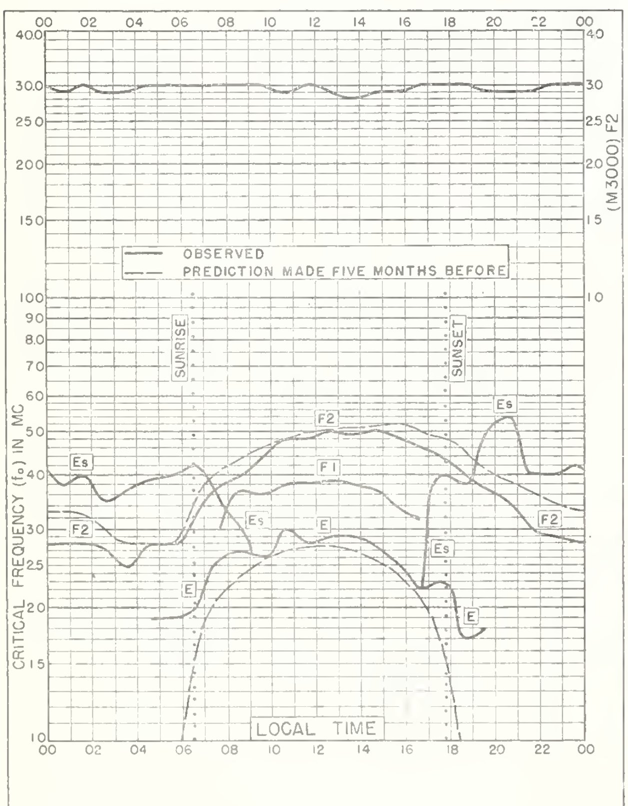


Fig. 39. BAKER LAKE, CANADA
64.3°N, 96.0°W MARCH 1952

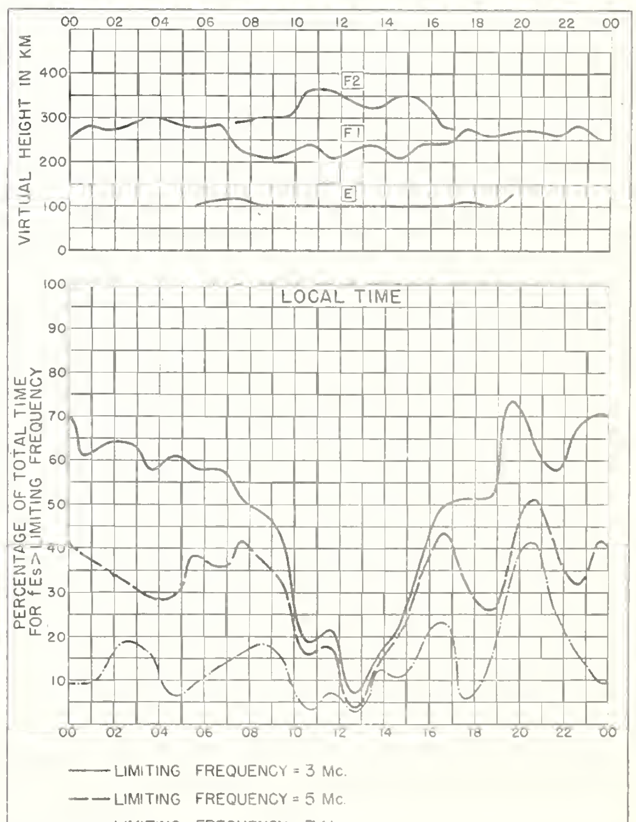


Fig. 40. BAKER LAKE, CANADA MARCH 1952

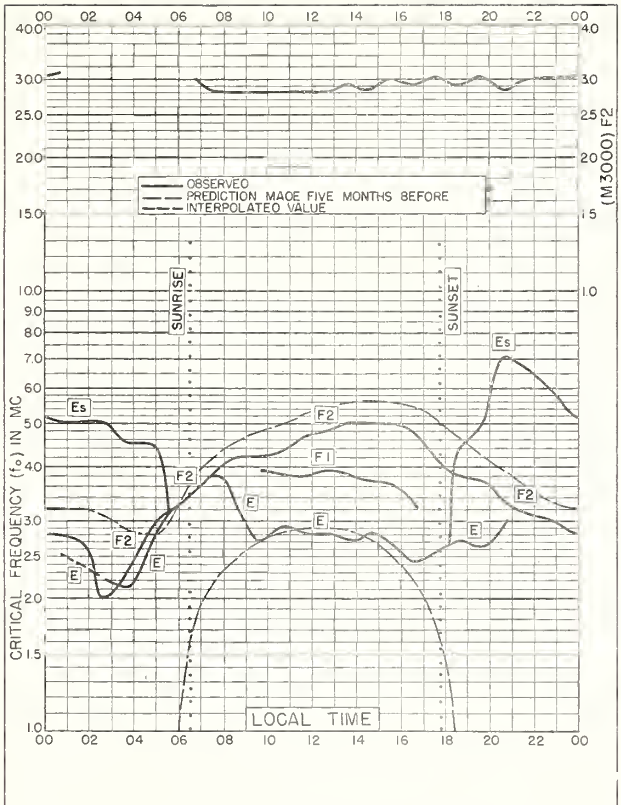


Fig. 41. CHURCHILL, CANADA
58.8°N, 94.2°W MARCH 1952

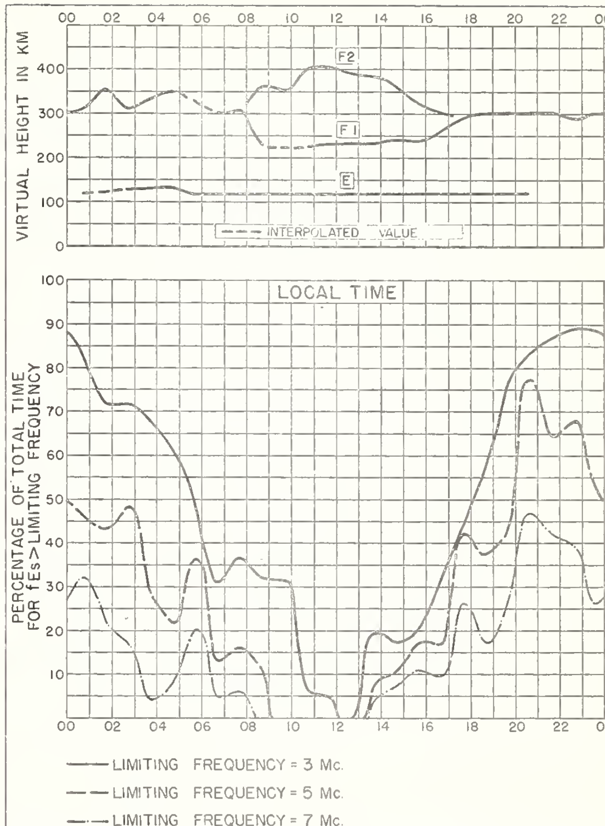


Fig. 42. CHURCHILL, CANADA MARCH 1952

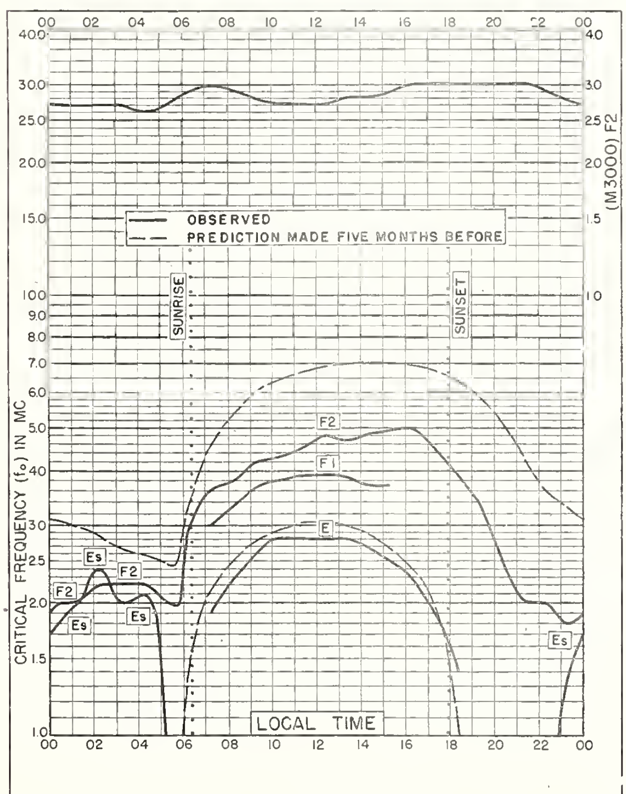


Fig. 43. PRINCE RUPERT, CANADA
54.3°N, 130.3°W MARCH 1952

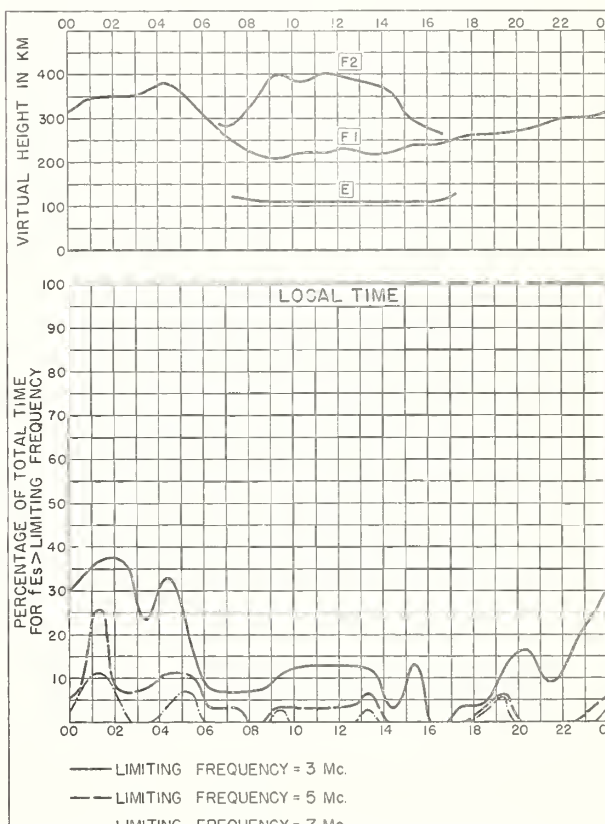


Fig. 44. PRINCE RUPERT, CANADA MARCH 1952

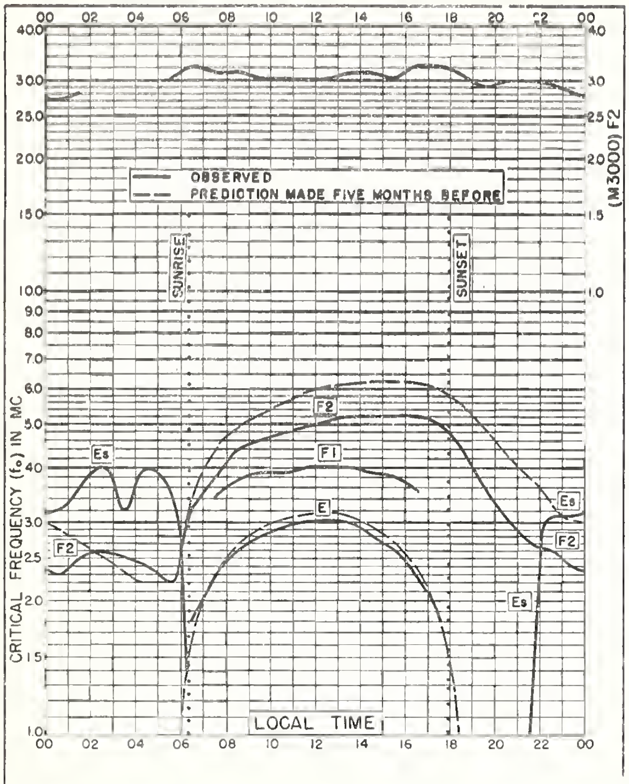


Fig. 45. WINNIPEG, CANADA
49.9°N, 97.4°W MARCH 1952

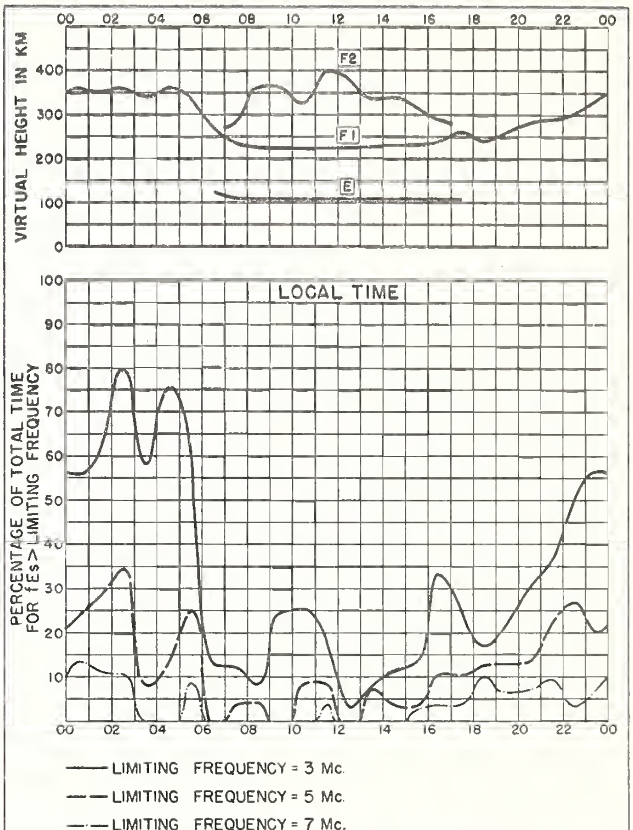


Fig. 46. WINNIPEG, CANADA MARCH 1952

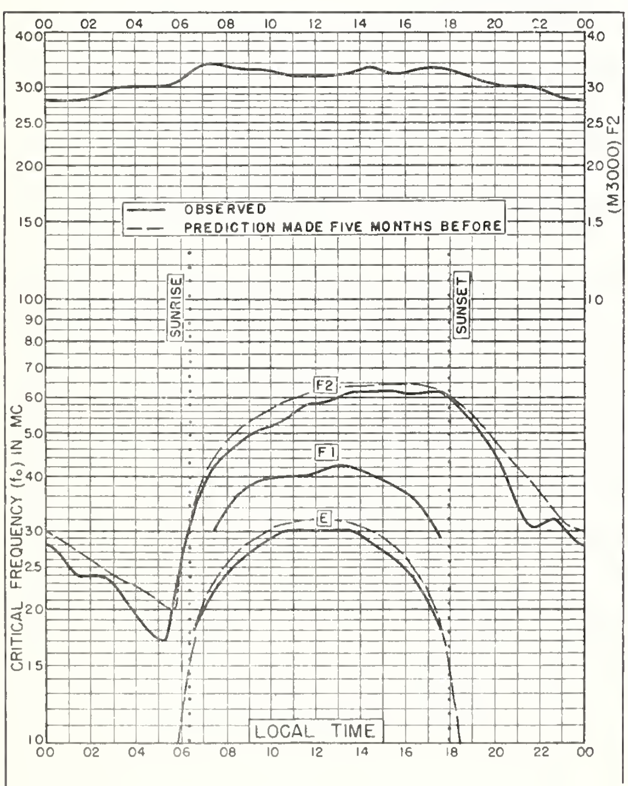


Fig. 47. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W MARCH 1952

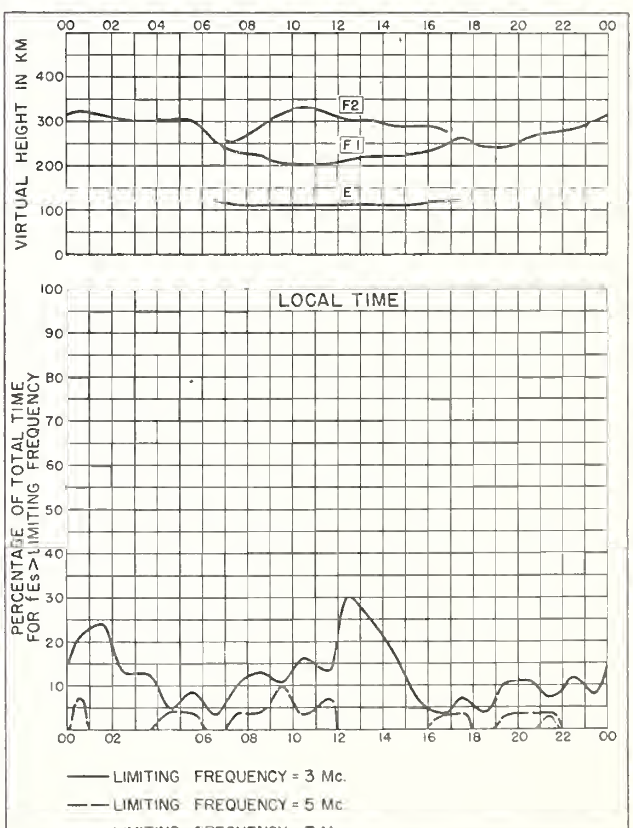


Fig. 48. ST. JOHN'S, NEWFOUNDLAND MARCH 1952

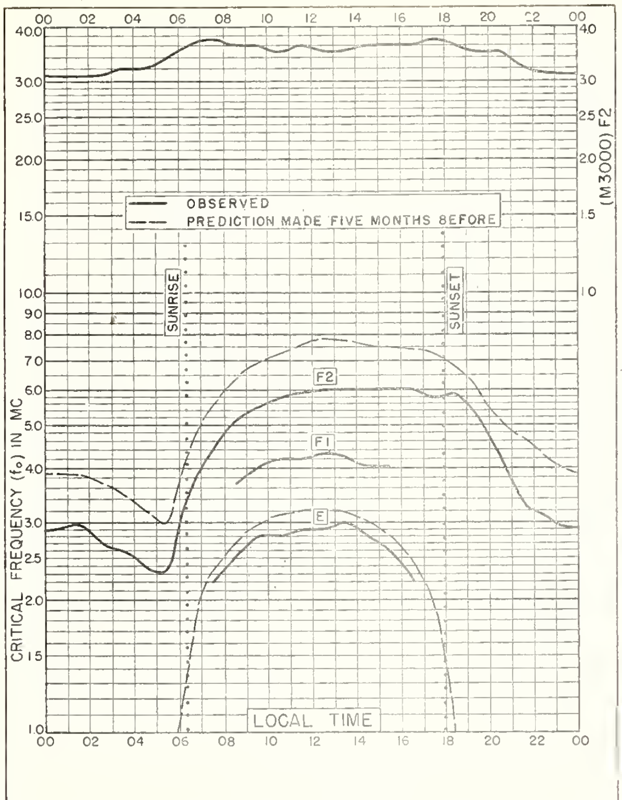


Fig. 49. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E MARCH 1952

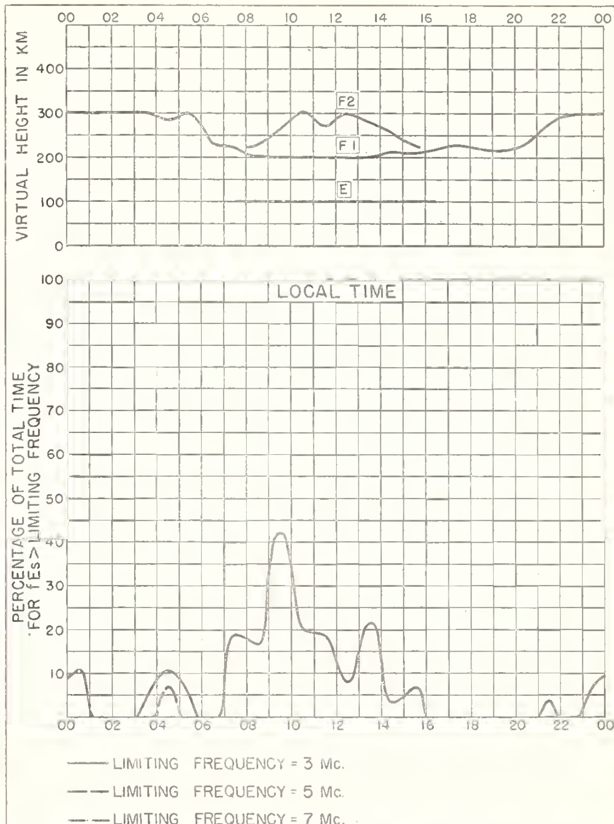


Fig. 50. SCHWARZENBURG, SWITZERLAND MARCH 1952

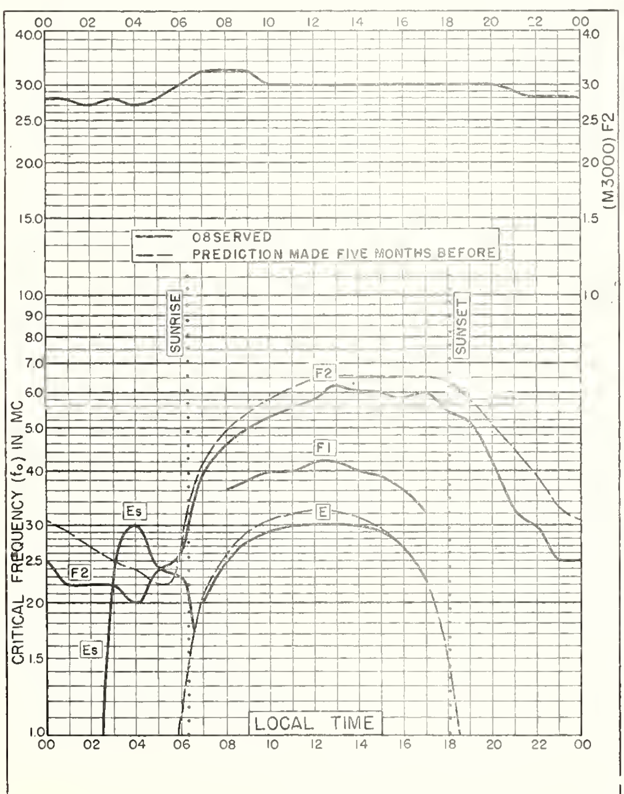


Fig. 51. OTTAWA, CANADA
45.4°N, 75.7°W MARCH 1952

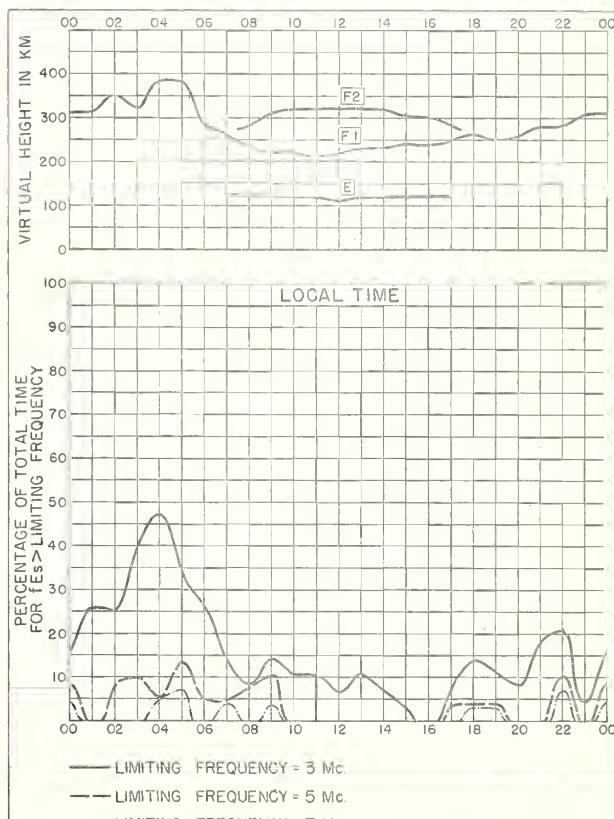


Fig. 52. OTTAWA, CANADA MARCH 1952

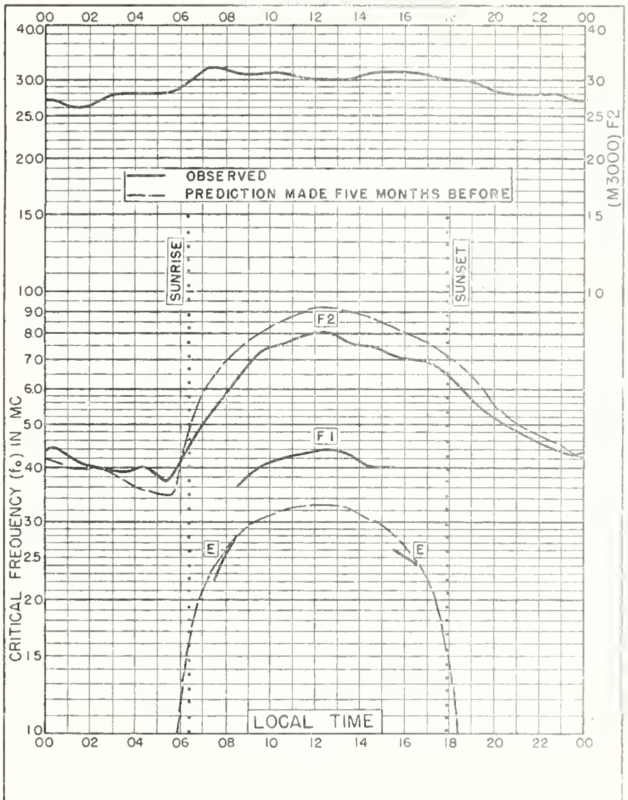


Fig. 53. WAKKANAI, JAPAN
45.4°N, 141.7°E MARCH 1952

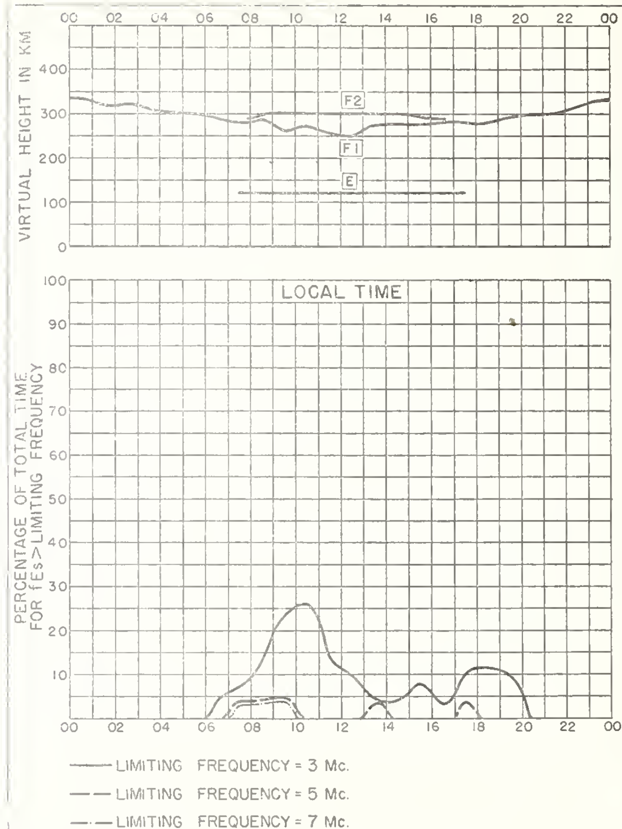


Fig. 54. WAKKANAI, JAPAN MARCH 1952

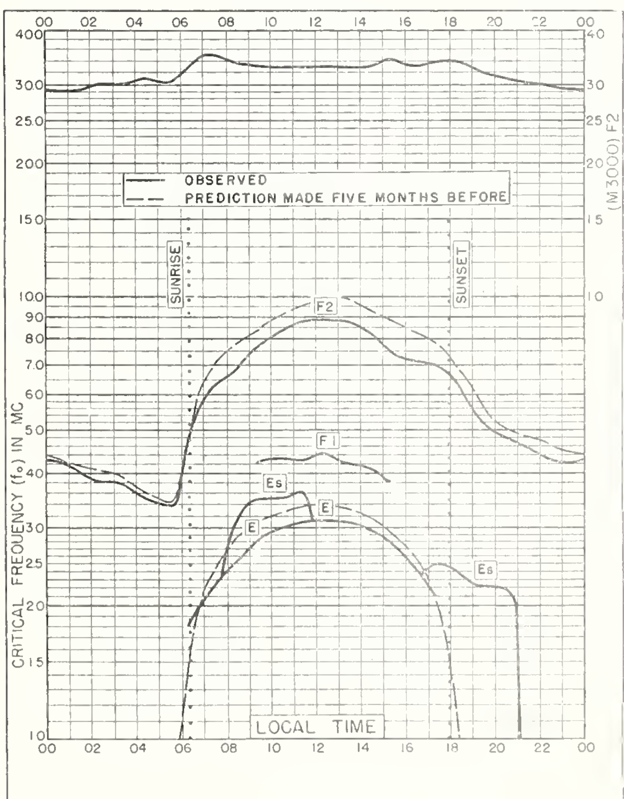


Fig. 55. AKITA, JAPAN
39.7°N, 140.1°E MARCH 1952

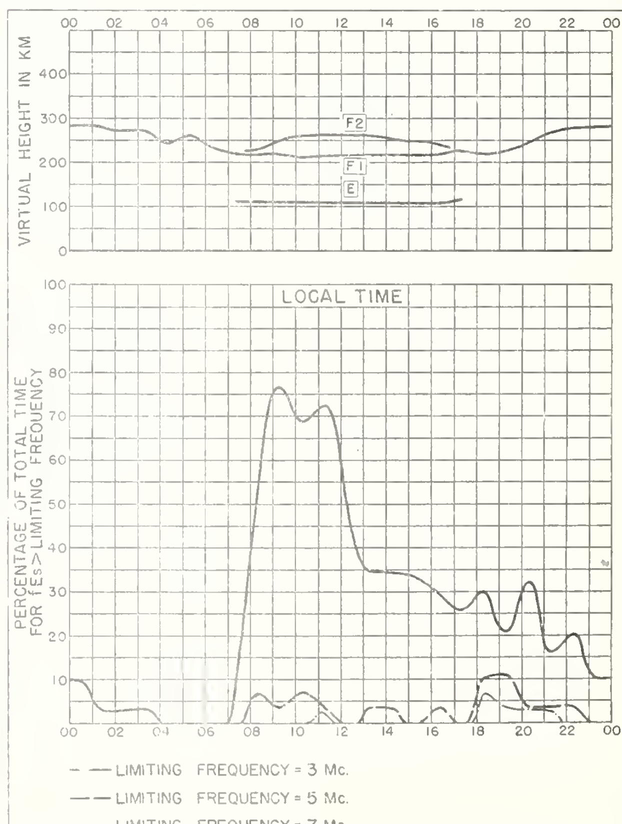


Fig. 56. AKITA, JAPAN MARCH 1952

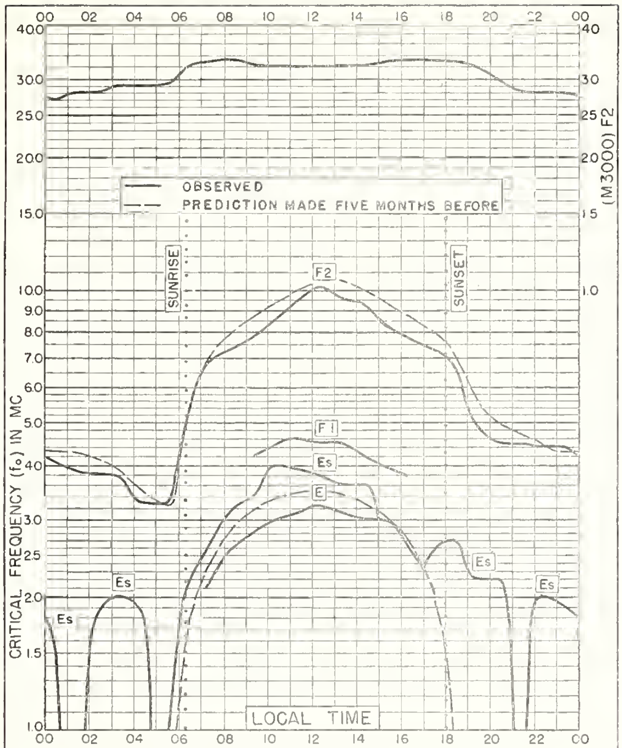


Fig. 57. TOKYO, JAPAN
35.7°N, 139.5°E MARCH 1952

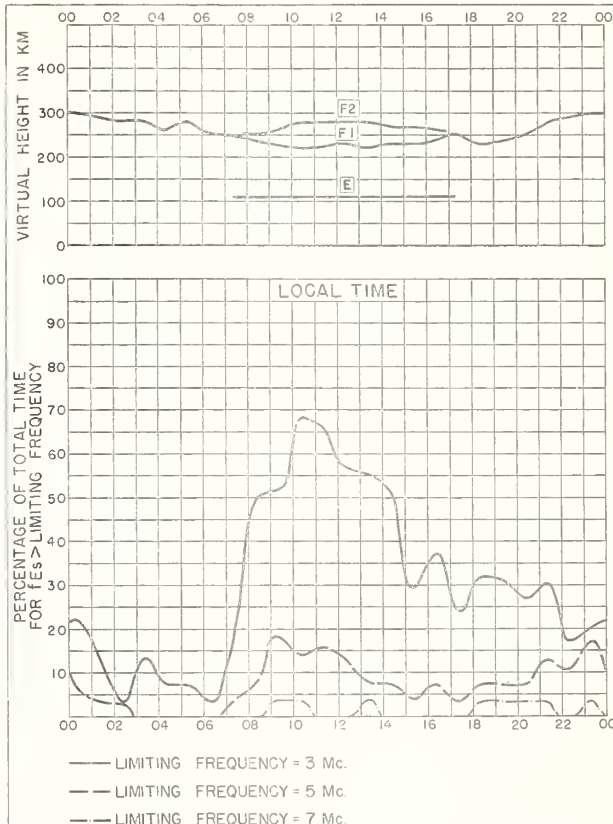


Fig. 58. TOKYO, JAPAN MARCH 1952

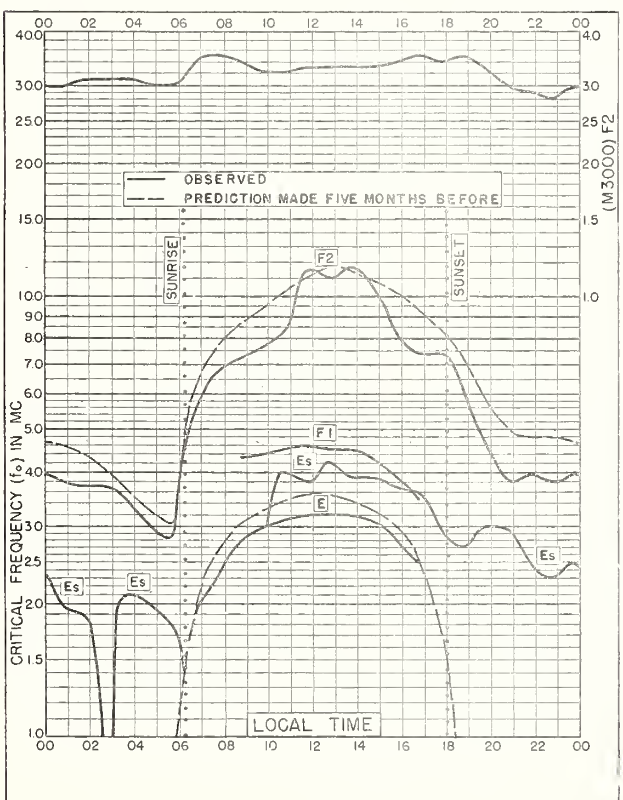


Fig. 59. YAMAGAWA, JAPAN
31.2°N, 130.6°E MARCH 1952

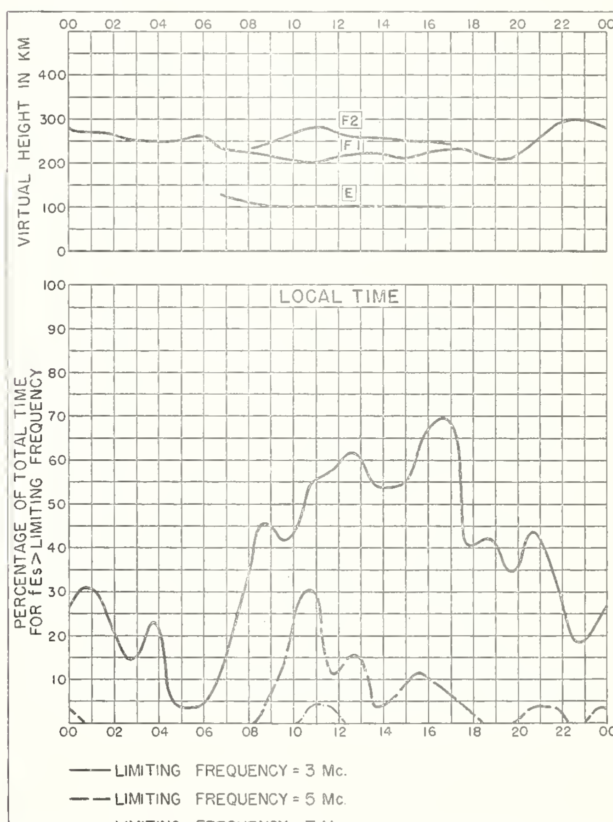


Fig. 60. YAMAGAWA, JAPAN MARCH 1952

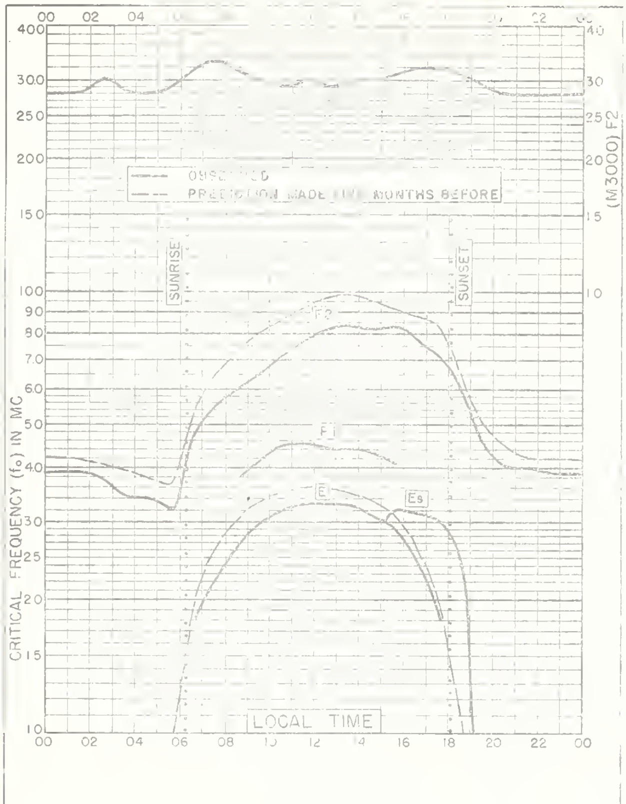


Fig 61. COCOA, FLORIDA
28.2°N, 80.6°W MARCH 1952

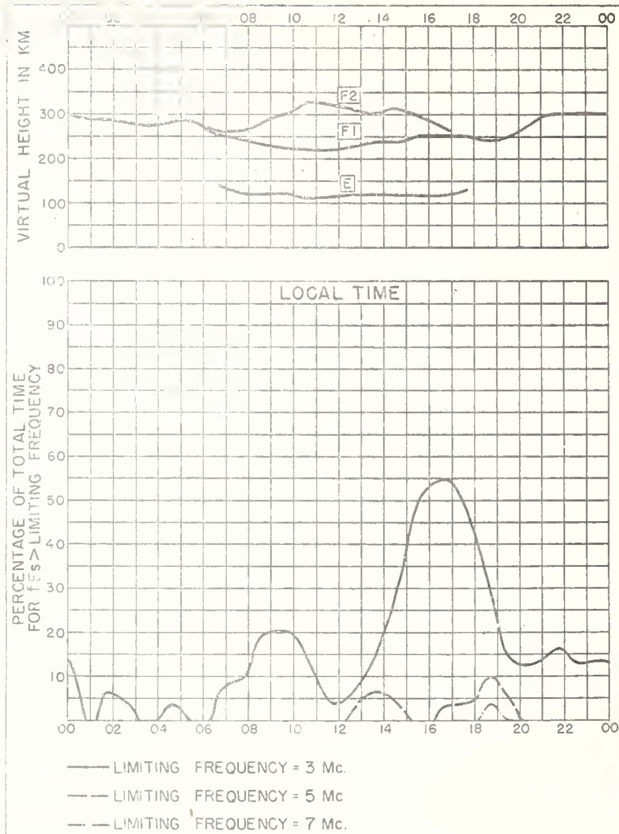


Fig. 62. COCOA, FLORIDA MARCH 1952

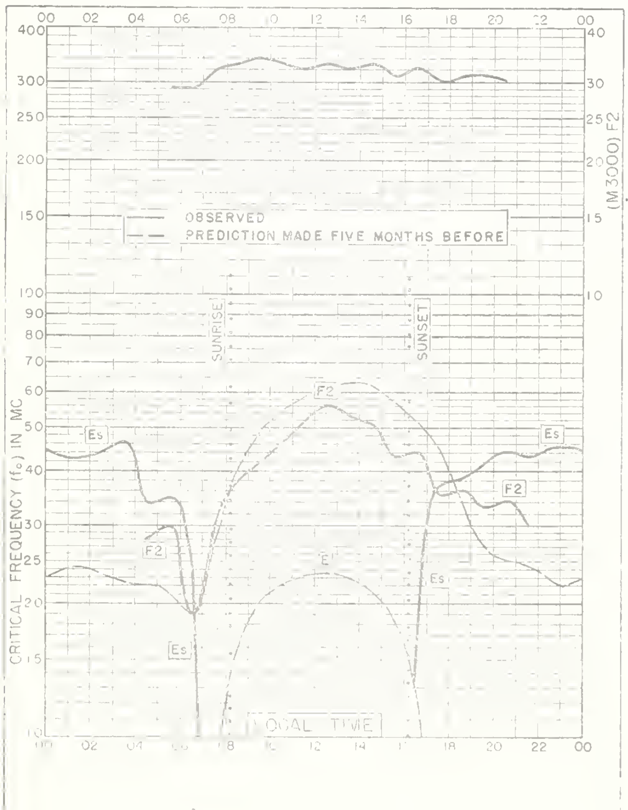


Fig. 63. REYKJAVIK, ICELAND
64.1°N, 21.8°W FEBRUARY 1952

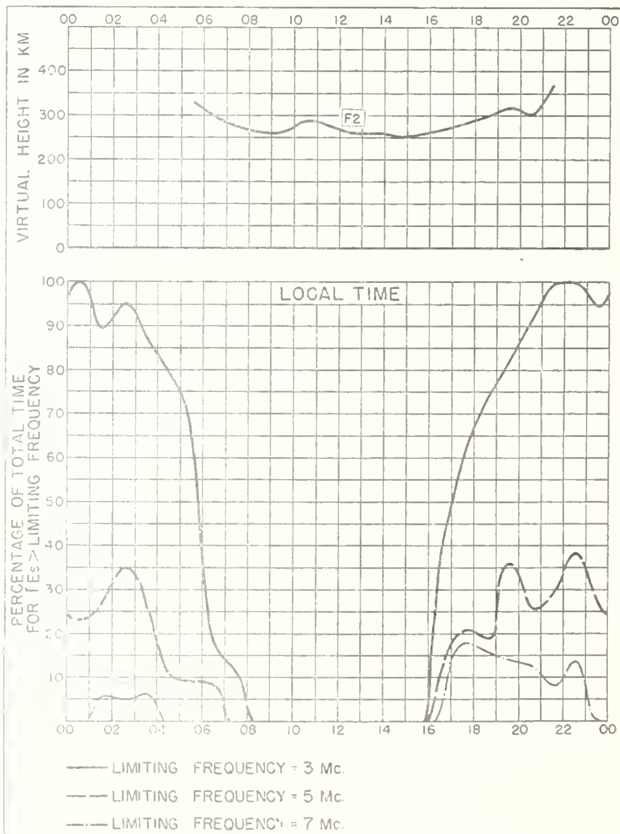


Fig. 64. REYKJAVIK, ICELAND FEBRUARY 1952

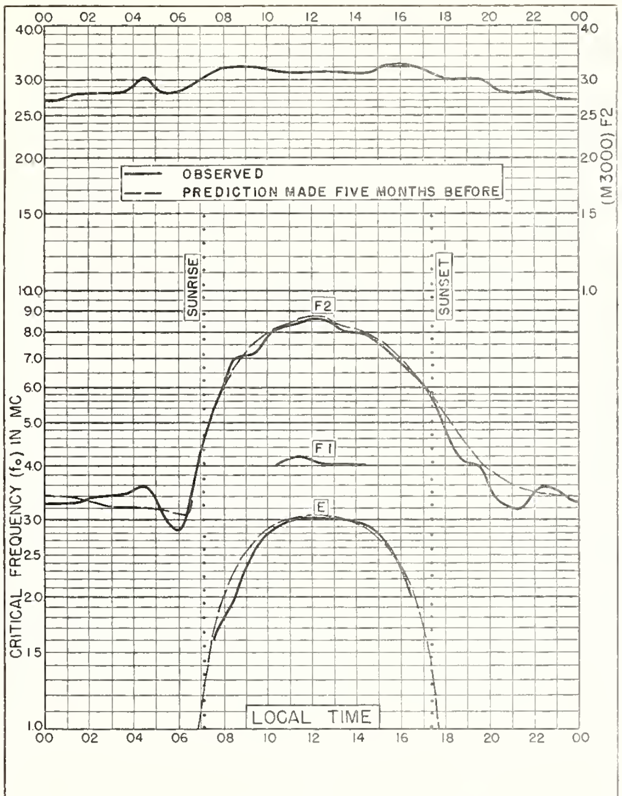


Fig. 65. WAKKANAI, JAPAN
45.4°N, 141.7°E FEBRUARY 1952

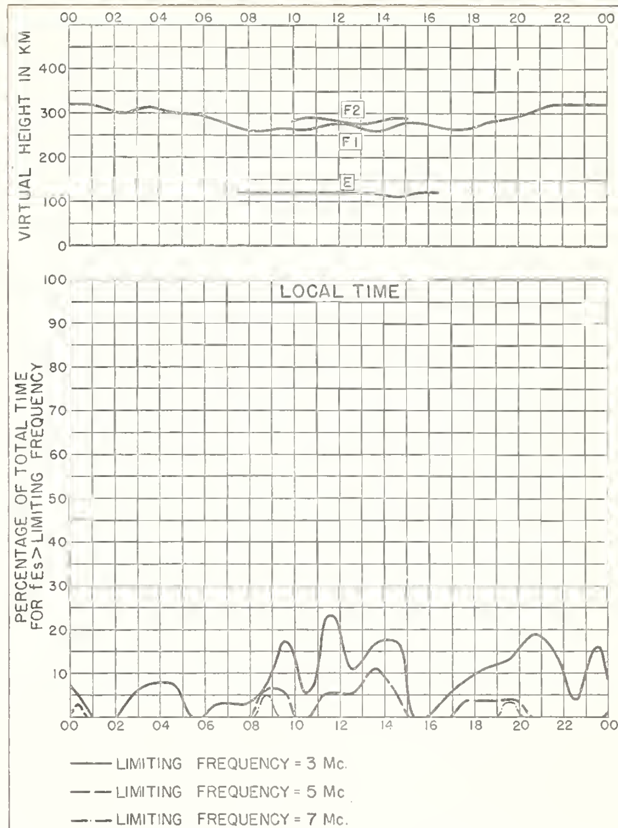


Fig. 66. WAKKANAI, JAPAN FEBRUARY 1952

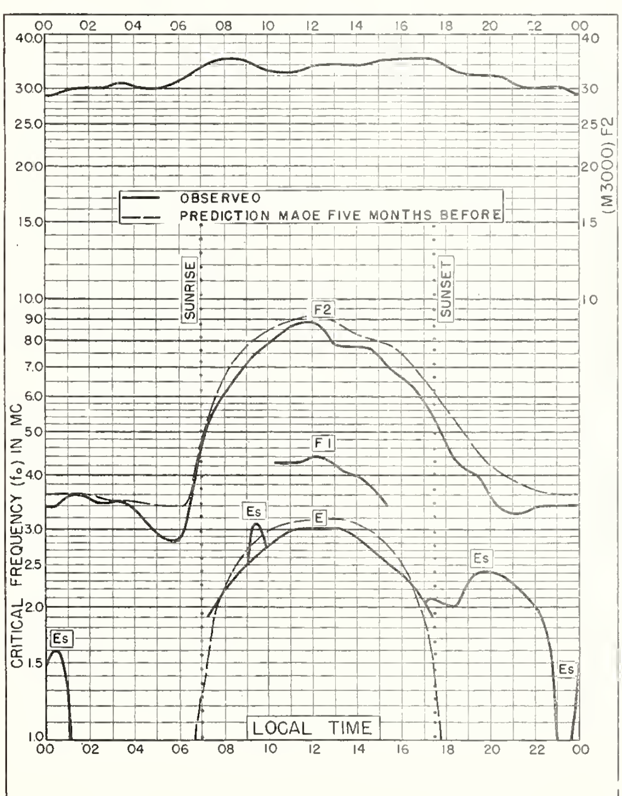


Fig. 67. AKITA, JAPAN
39.7°N, 140.1°E FEBRUARY 1952

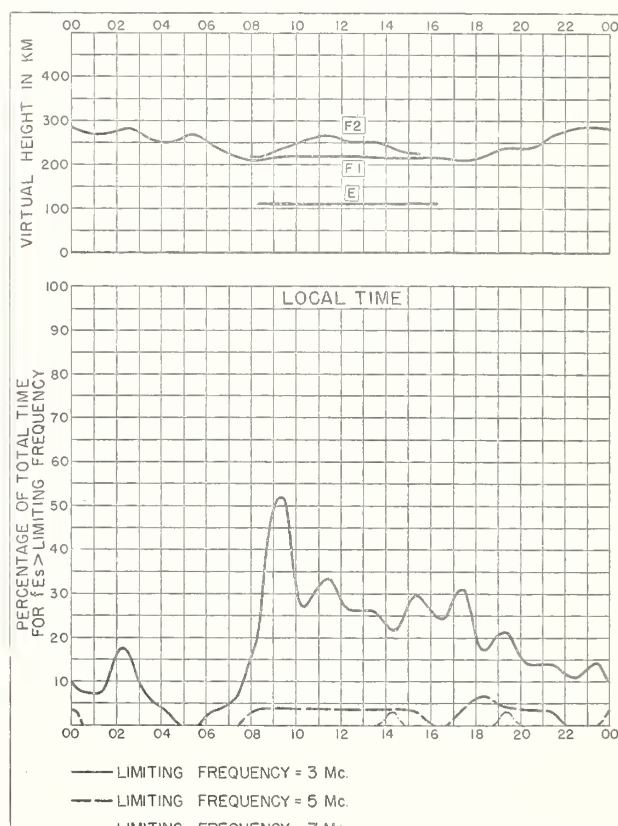


Fig. 68. AKITA, JAPAN FEBRUARY 1952

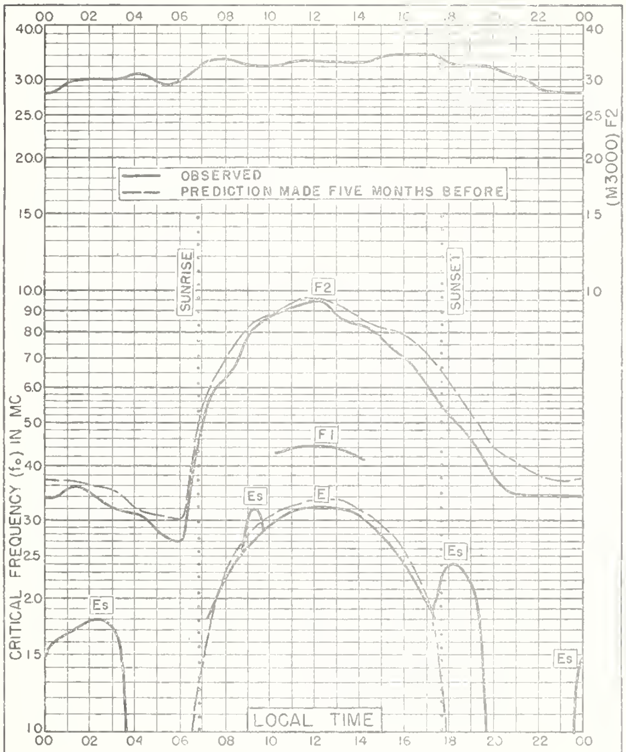


Fig. 69. TOKYO, JAPAN
35.7°N, 139. 5°E FEBRUARY 1952

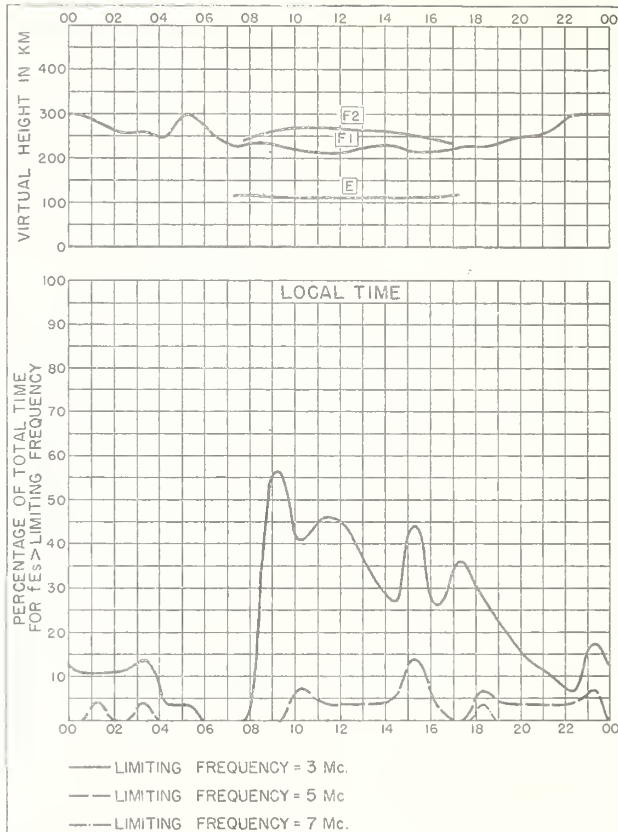


Fig. 70. TOKYO, JAPAN FEBRUARY 1952

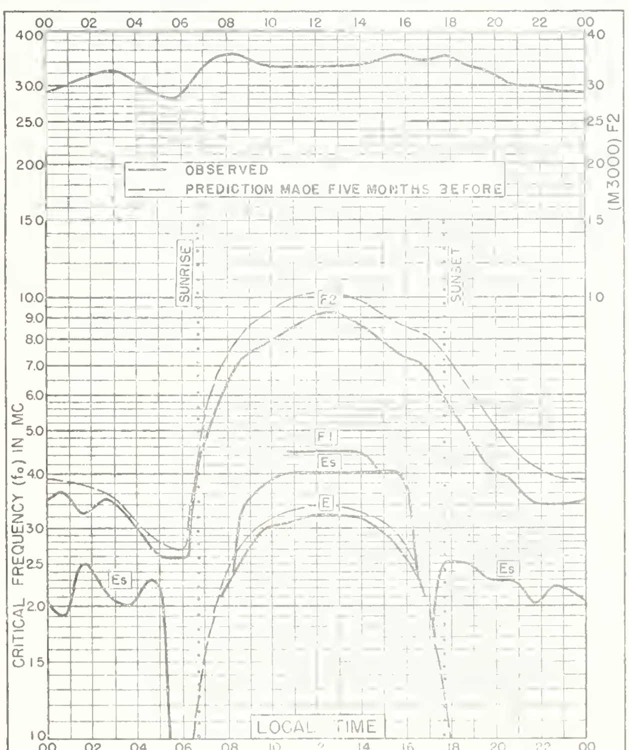


Fig. 71. YAMAGAWA, JAPAN
31. 2°N, 130. 6°E FEBRUARY 1952

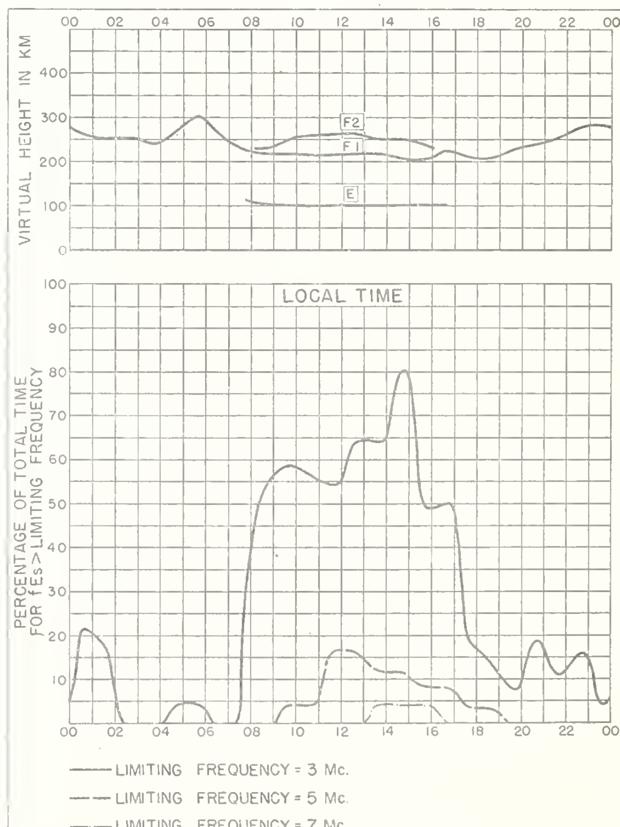


Fig. 72. YAMAGAWA, JAPAN FEBRUARY 1952

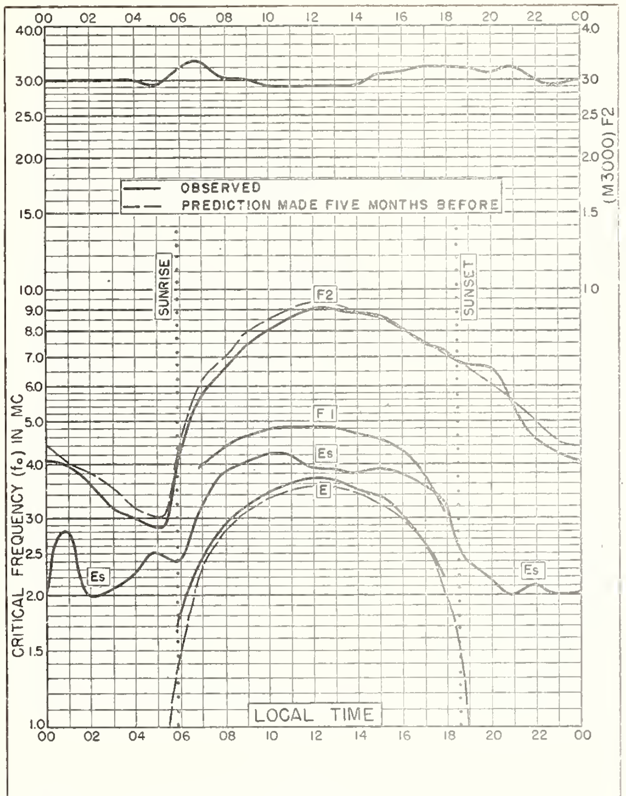


Fig. 73. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.1°E FEBRUARY 1952

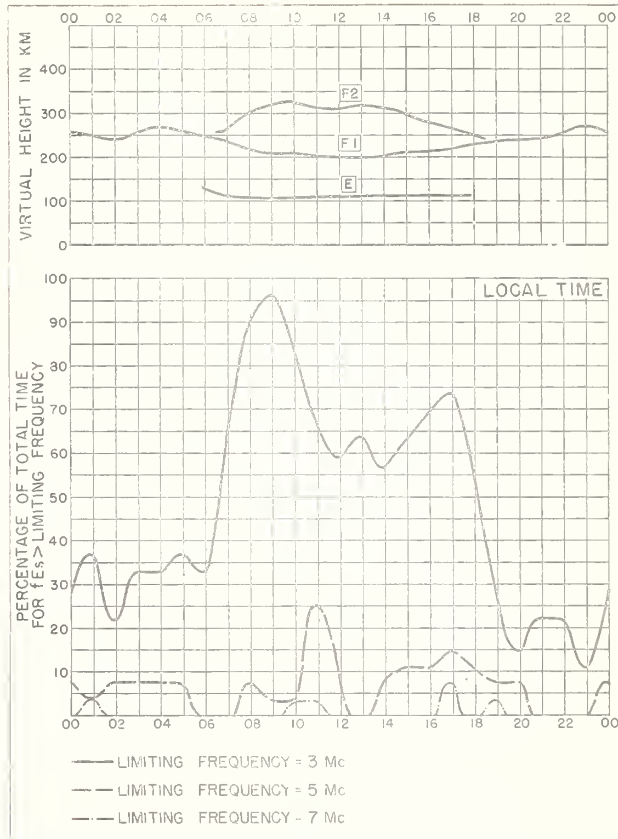


Fig. 74. JOHANNESBURG, U. OF S. AFRICA FEBRUARY 1952

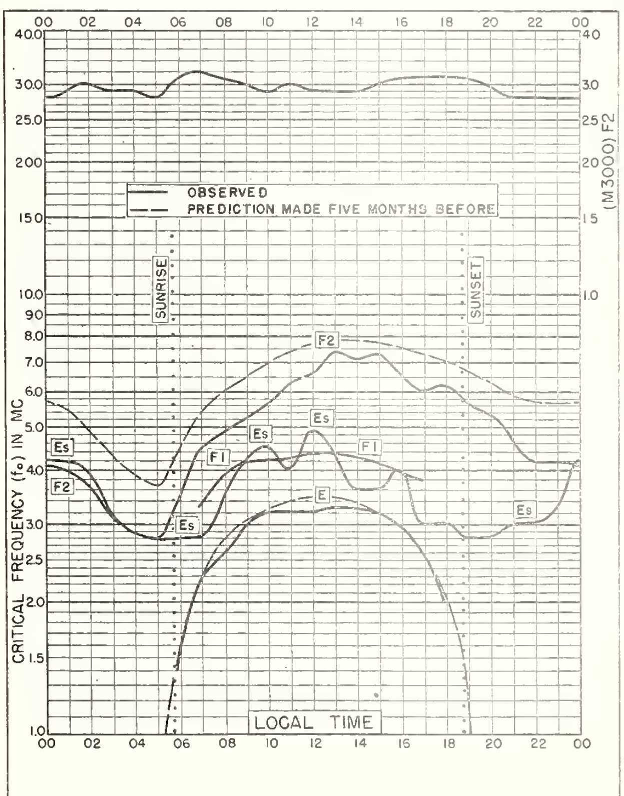


Fig. 75. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E FEBRUARY 1952

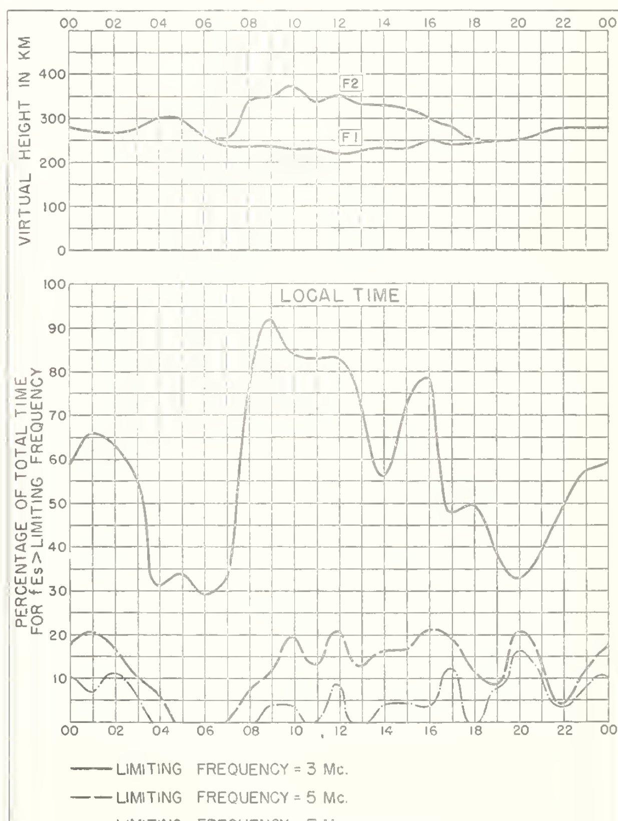


Fig. 76. WATHEROO, W. AUSTRALIA FEBRUARY 1952

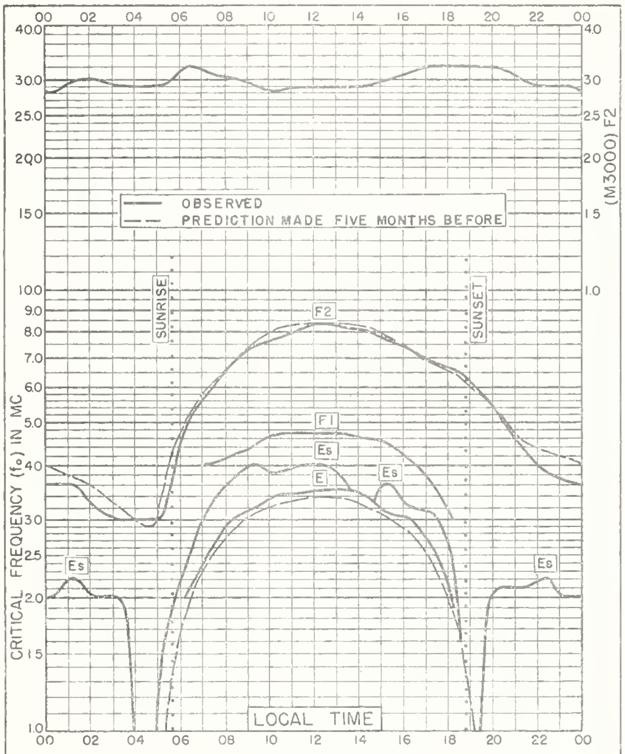


Fig. 77. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E FEBRUARY 1952

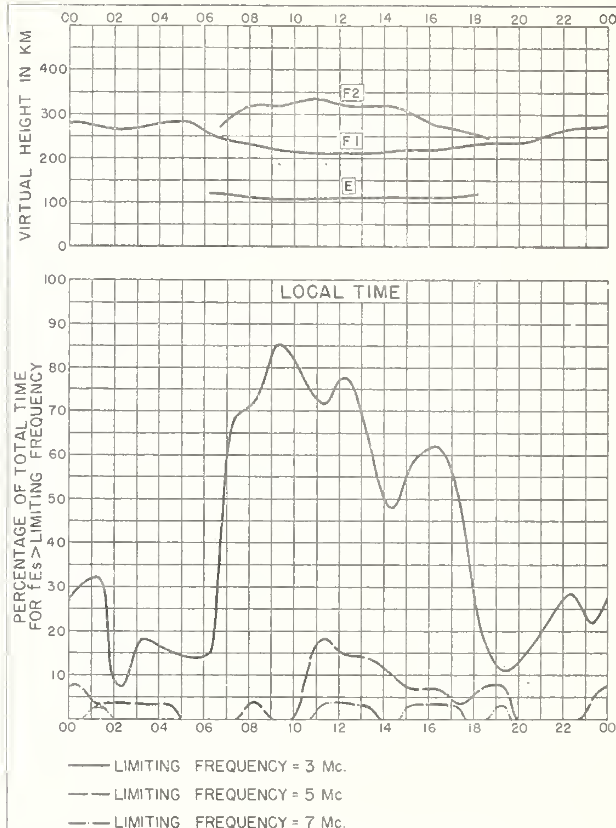


Fig. 78. CAPETOWN, U. OF S. AFRICA FEBRUARY 1952

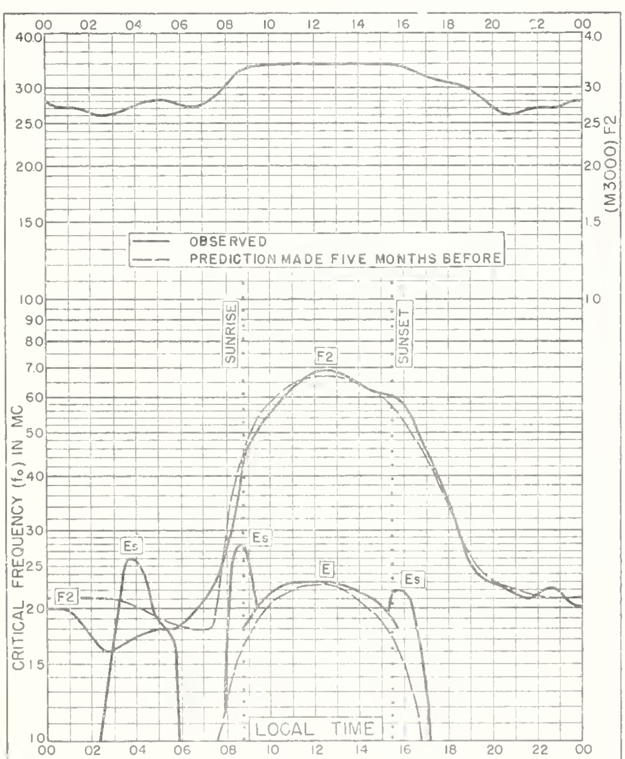


Fig. 79. INVERNESS, SCOTLAND
57.4°N, 4.2°W JANUARY 1952

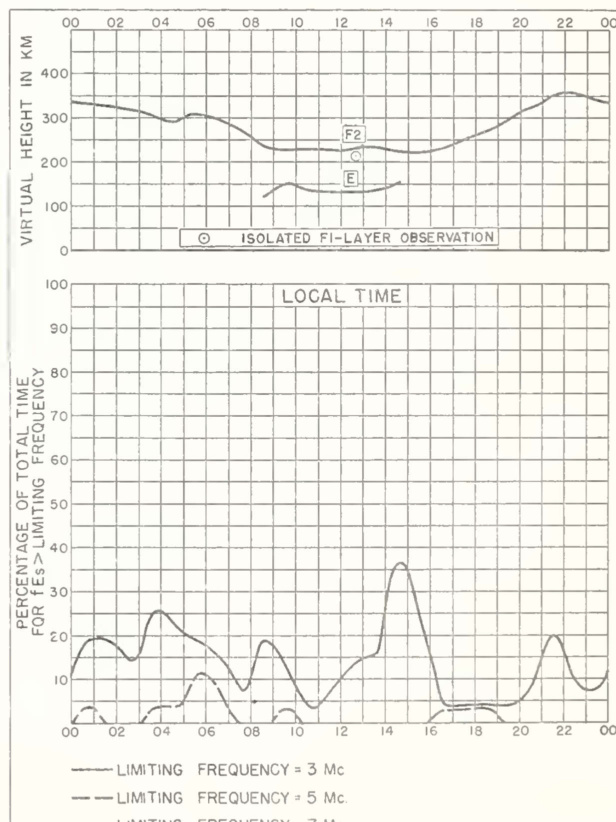


Fig. 80. INVERNESS, SCOTLAND JANUARY 1952

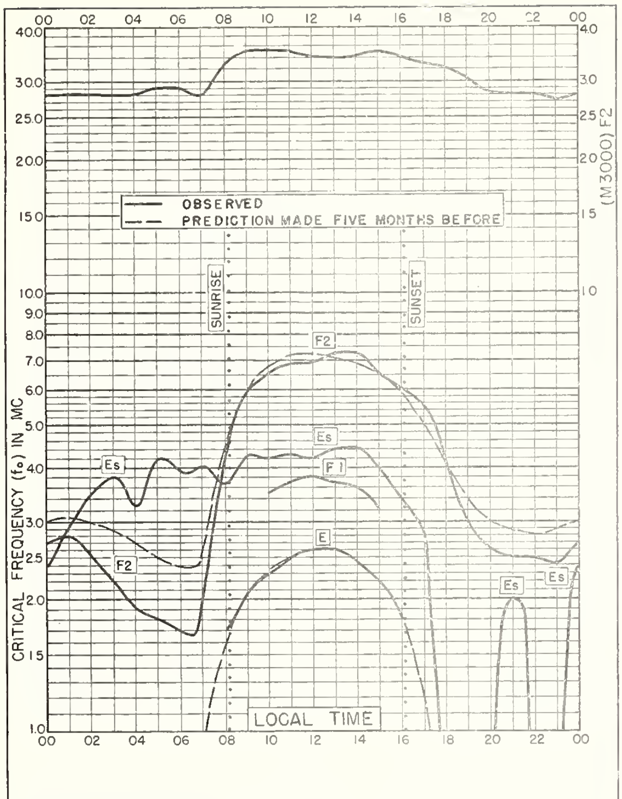


Fig. 81. SLOUGH, ENGLAND
51.5°N, 0.6°W JANUARY 1952

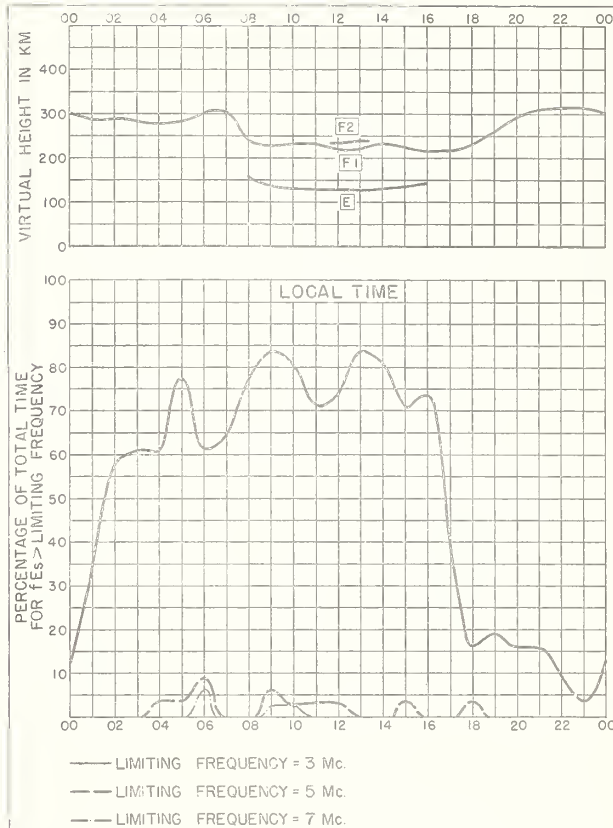


Fig. 82. SLOUGH, ENGLAND JANUARY 1952

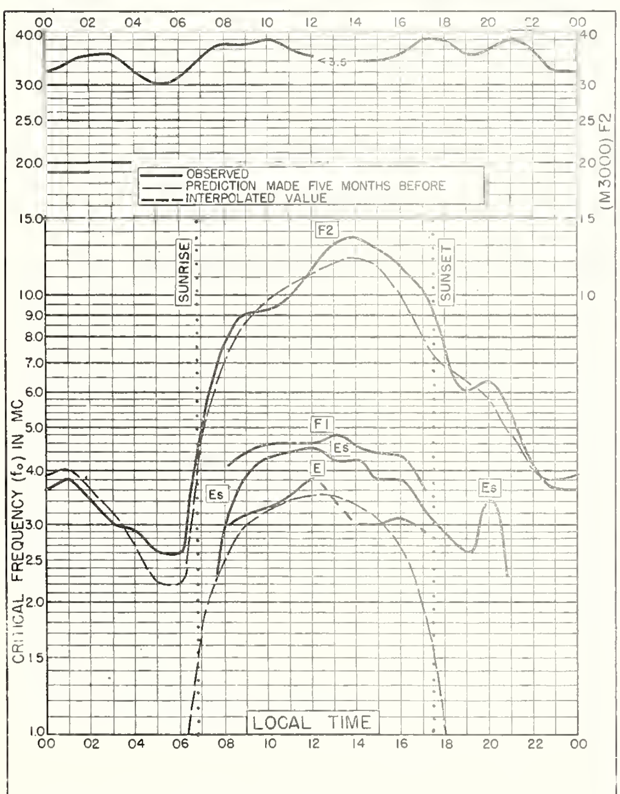


Fig. 83. FORMOSA, CHINA
25.0°N, 121.5°E JANUARY 1952

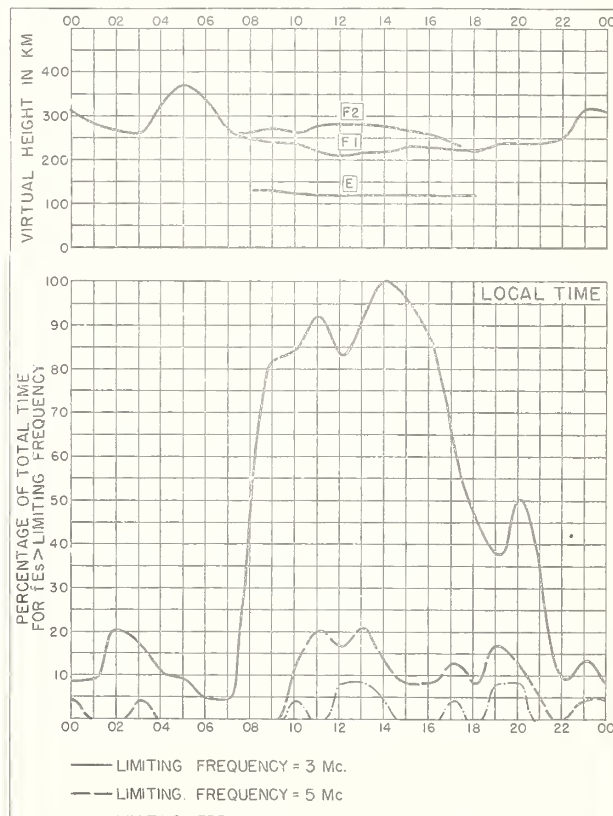


Fig. 84. FORMOSA, CHINA JANUARY 1952

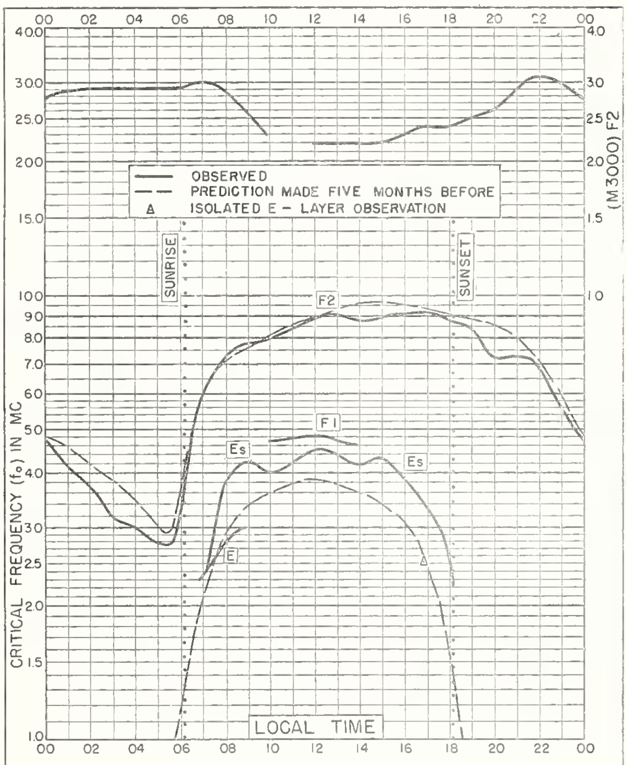


Fig. 85. SINGAPORE, BRIT. MALAYA
1.3°N, 103.8°E JANUARY 1952

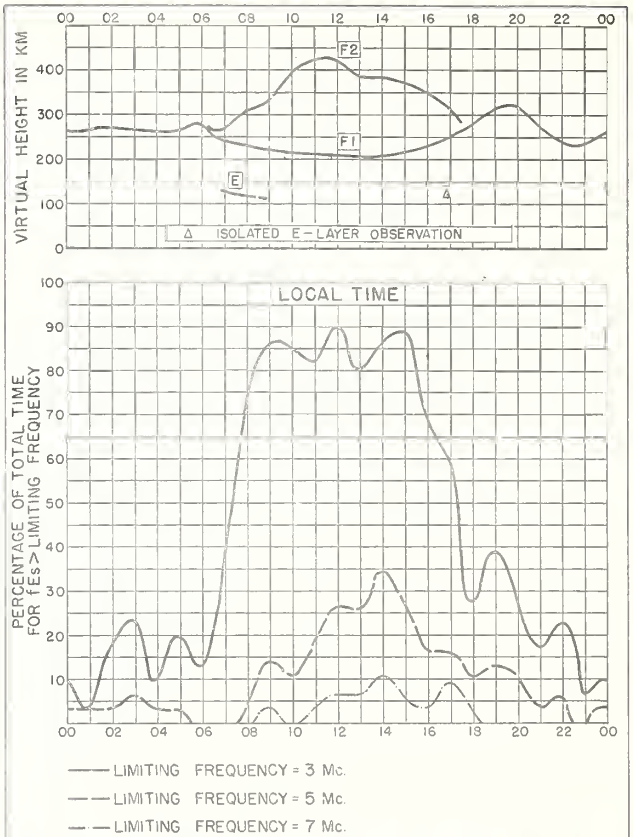


Fig. 86. SINGAPORE, BRIT. MALAYA JANUARY 1952

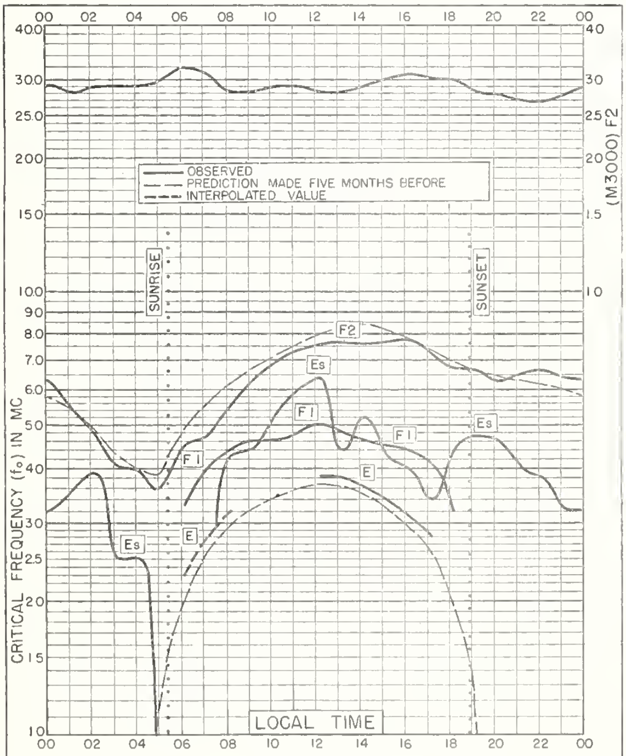


Fig. 87. BRISBANE, AUSTRALIA
27.5°S, 153.0°E JANUARY 1952

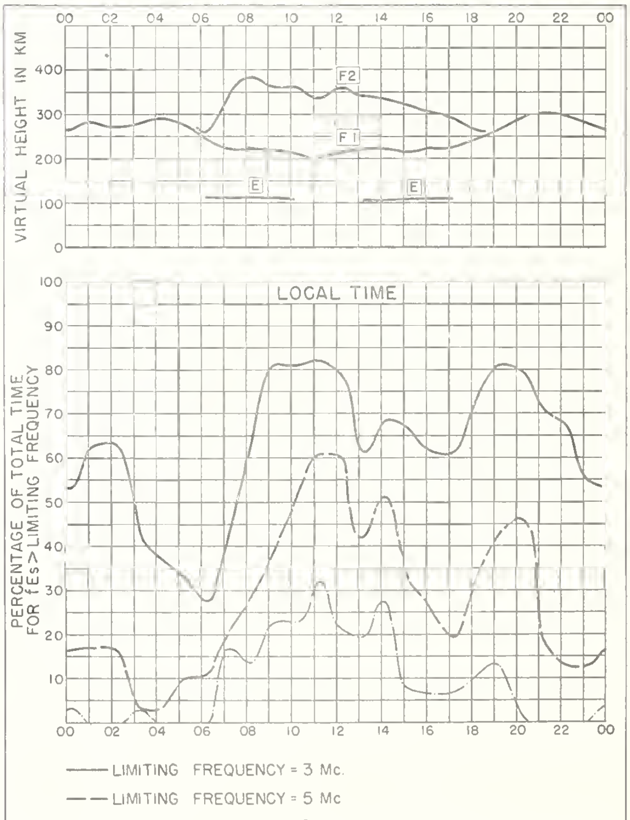


Fig. 88. BRISBANE, AUSTRALIA JANUARY 1952

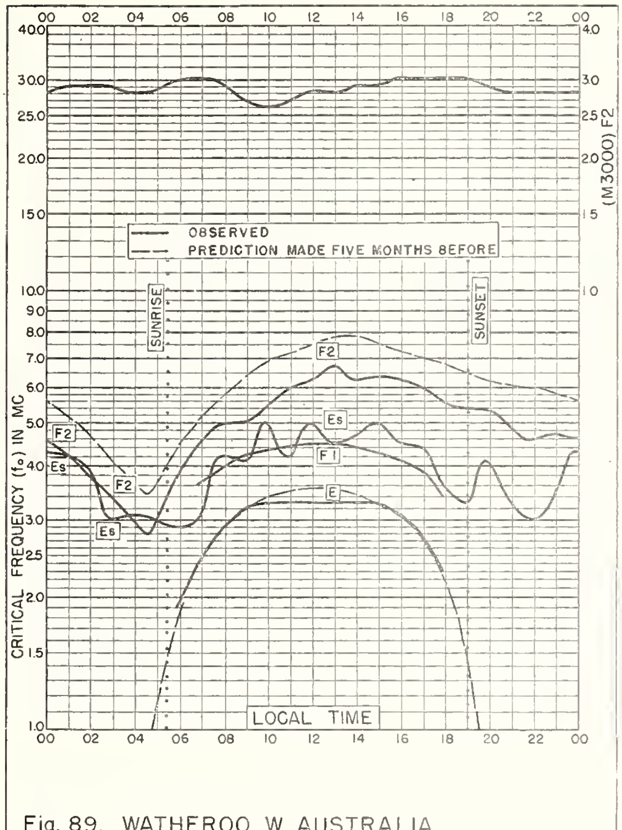


Fig. 89. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E JANUARY 1952

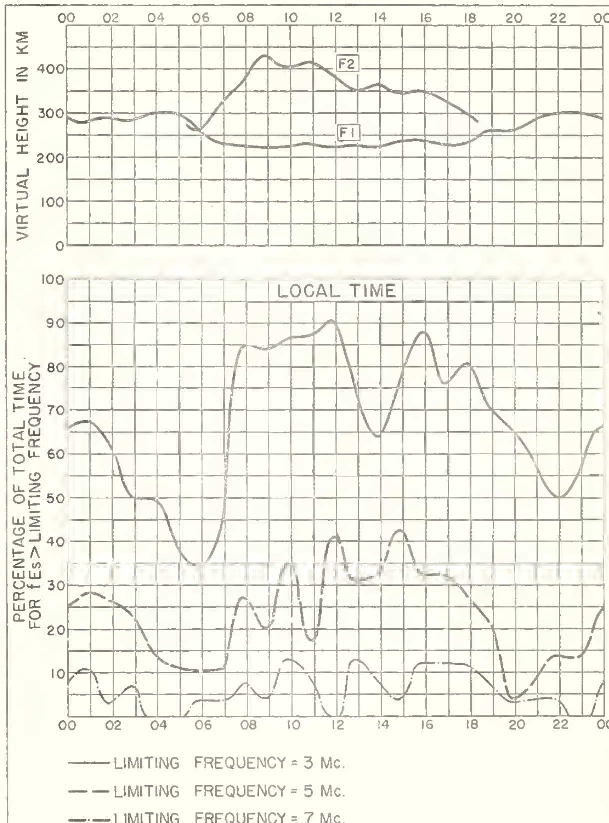


Fig. 90. WATHEROO, W. AUSTRALIA JANUARY 1952

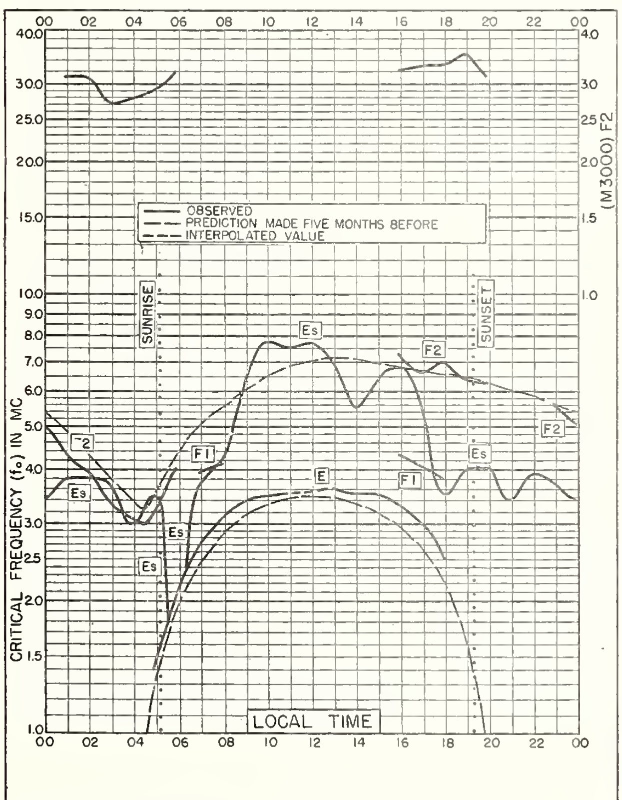


Fig. 91. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JANUARY 1952

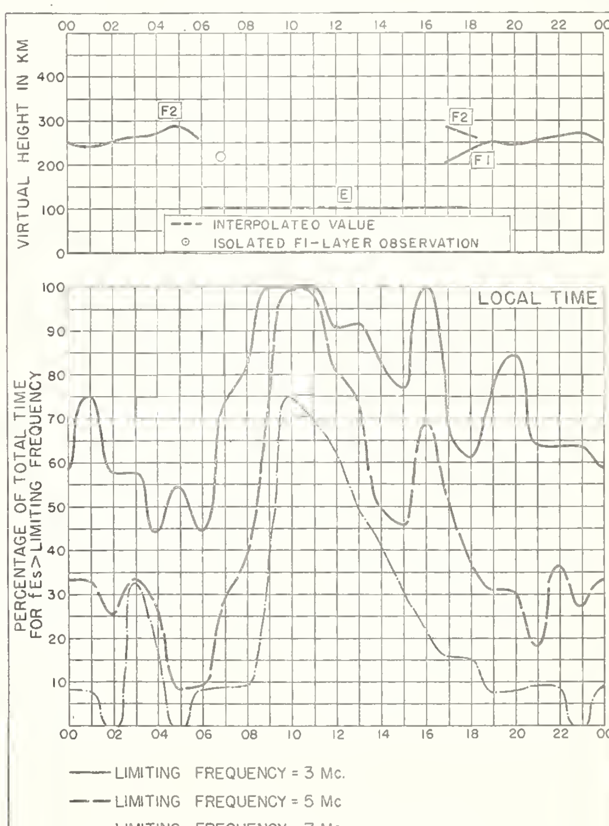


Fig. 92. CANBERRA, AUSTRALIA JANUARY 1952

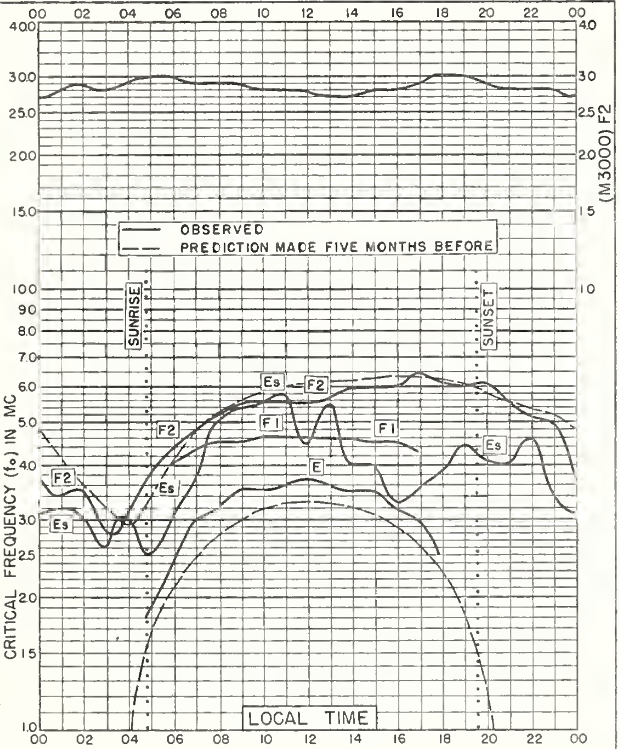


Fig. 93. HOBART, TASMANIA
42.8°S, 147.4°E JANUARY 1952

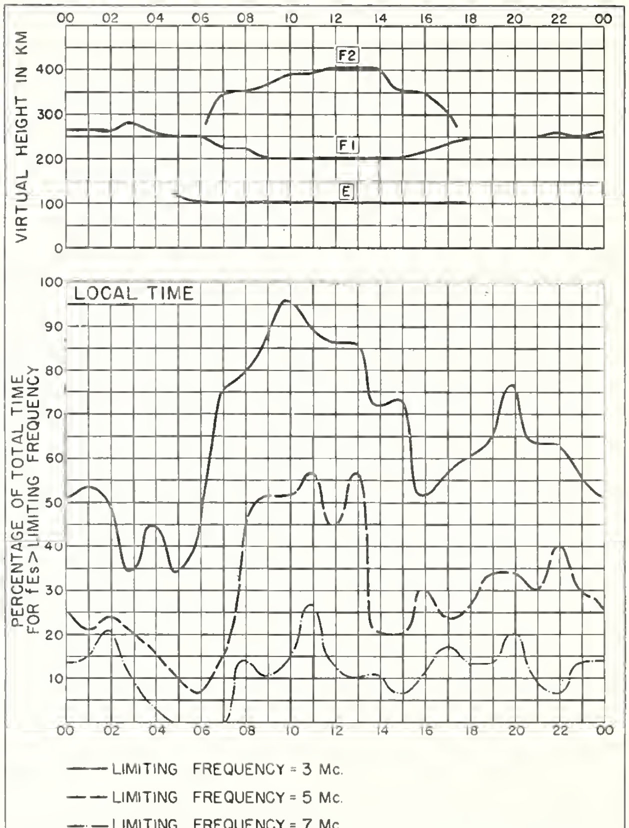


Fig. 94. HOBART, TASMANIA JANUARY 1952

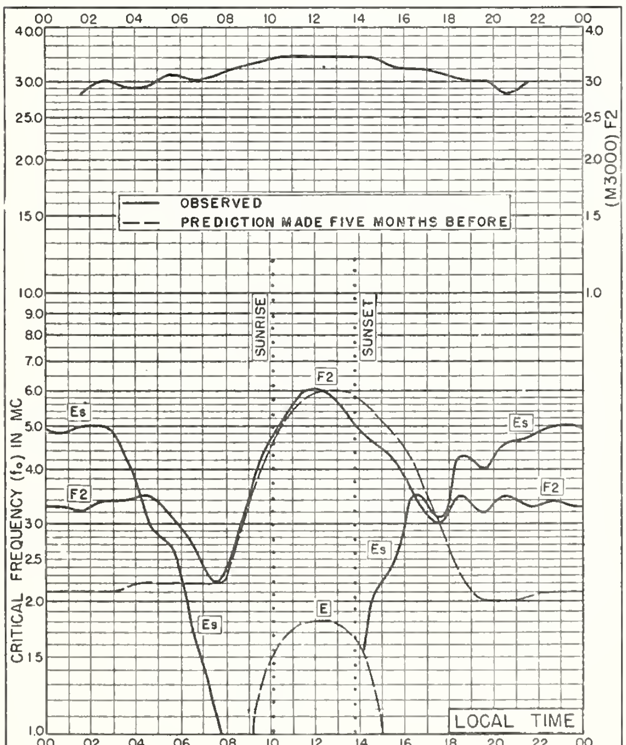


Fig. 95. REYKJAVIK, ICELAND
64.1°N, 21.8°W DECEMBER 1951

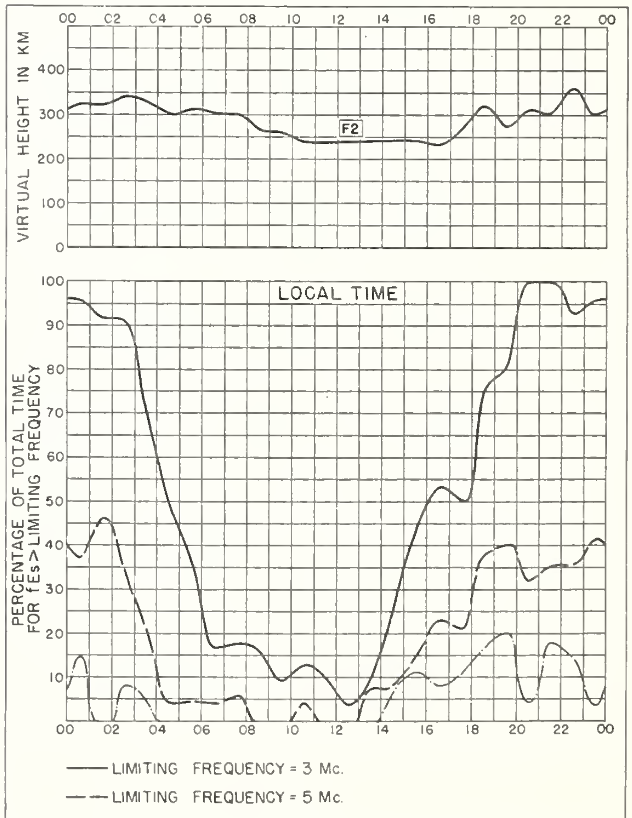


Fig. 96. REYKJAVIK, ICELAND DECEMBER 1951

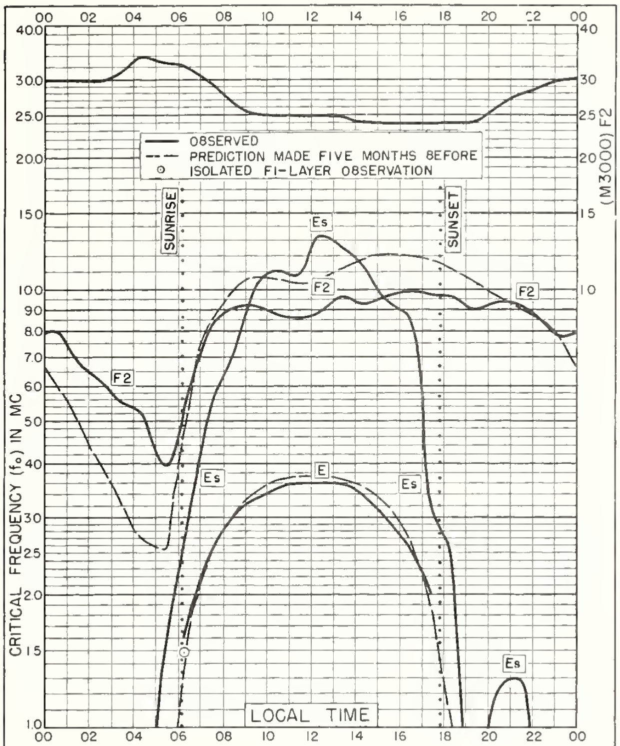


Fig. 97. IBADAN, NIGERIA
7.4°N, 4.0°E DECEMBER 1951

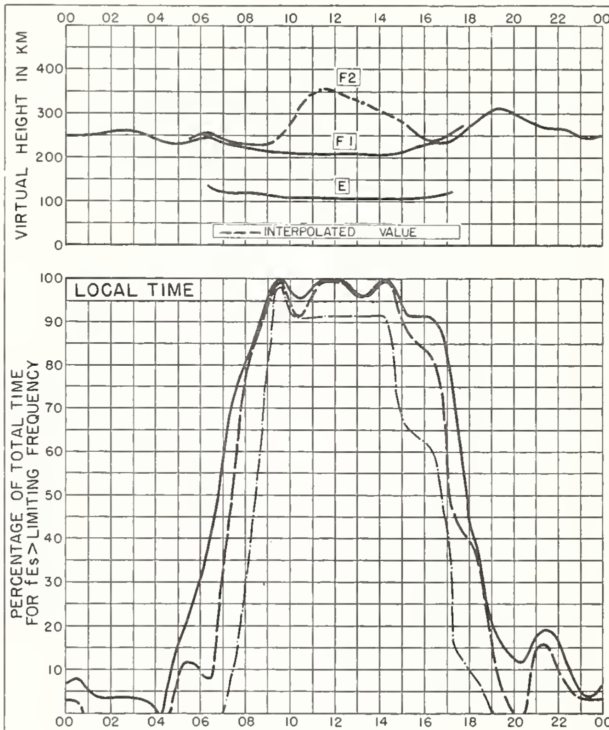


Fig. 98. IBADAN, NIGERIA DECEMBER 1951

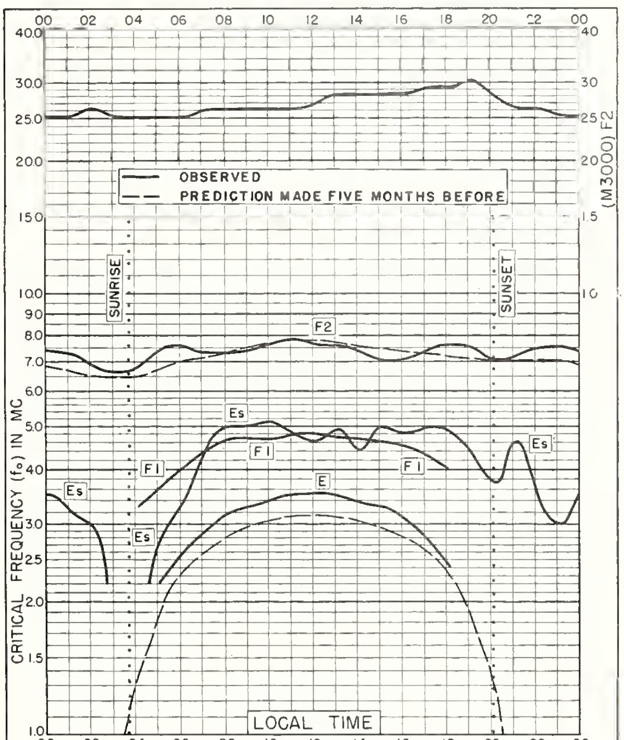


Fig. 99. FALKLAND IS.
51.7°S, 57.8°W DECEMBER 1951

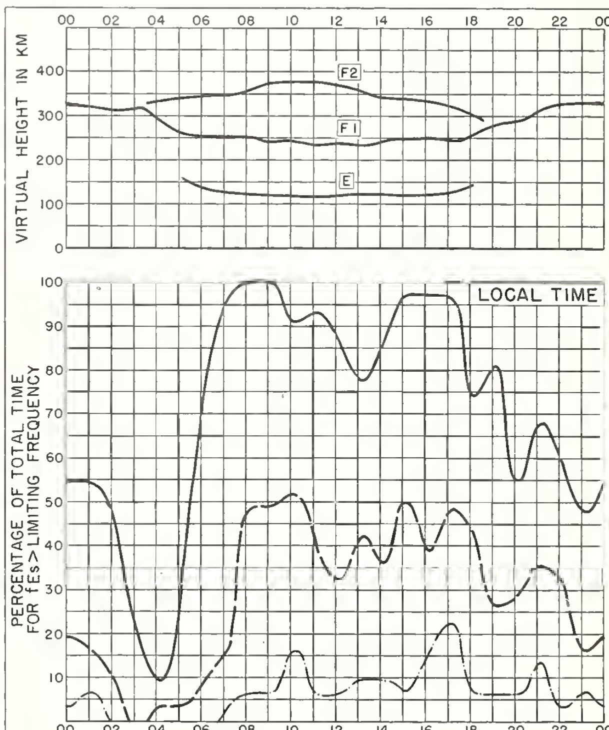


Fig. 100. FALKLAND IS. DECEMBER 1951

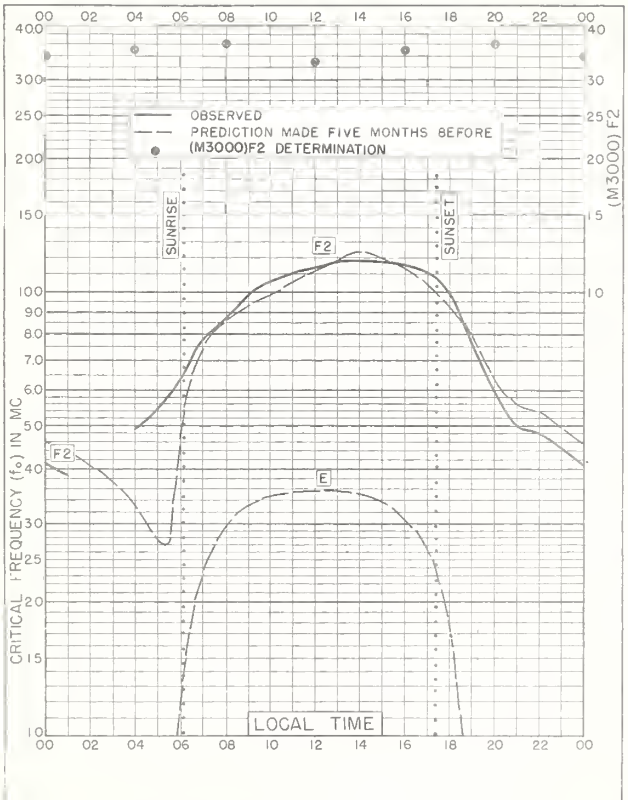


Fig. 101. DELHI, INDIA
28.6°N, 77.1°E OCTOBER 1951

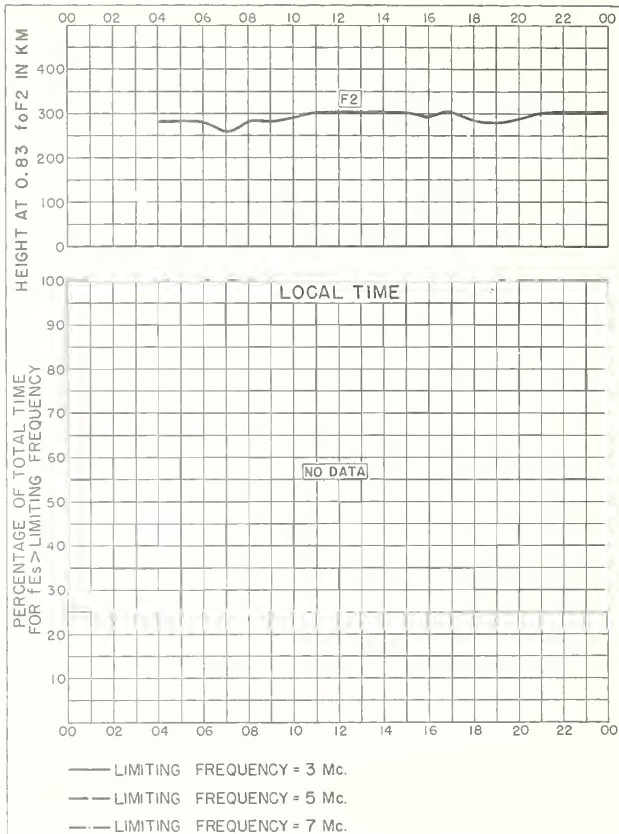


Fig. 102. DELHI, INDIA OCTOBER 1951

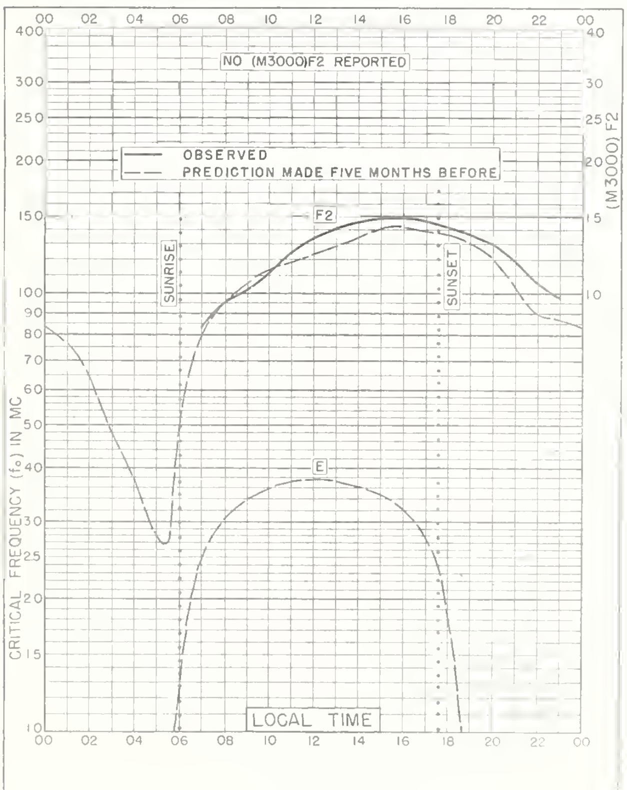


Fig. 103. BOMBAY, INDIA
19.0°N, 73.0°E OCTOBER 1951

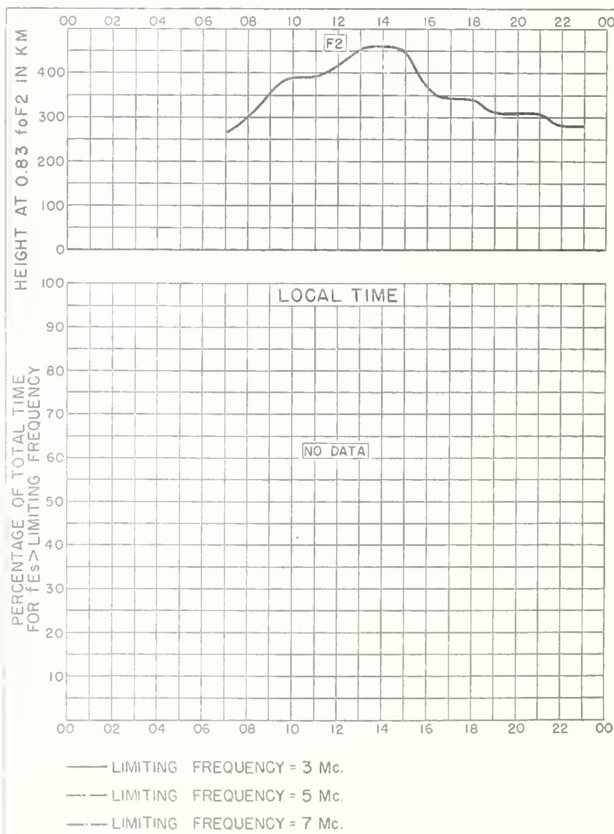


Fig. 104. BOMBAY, INDIA OCTOBER 1951

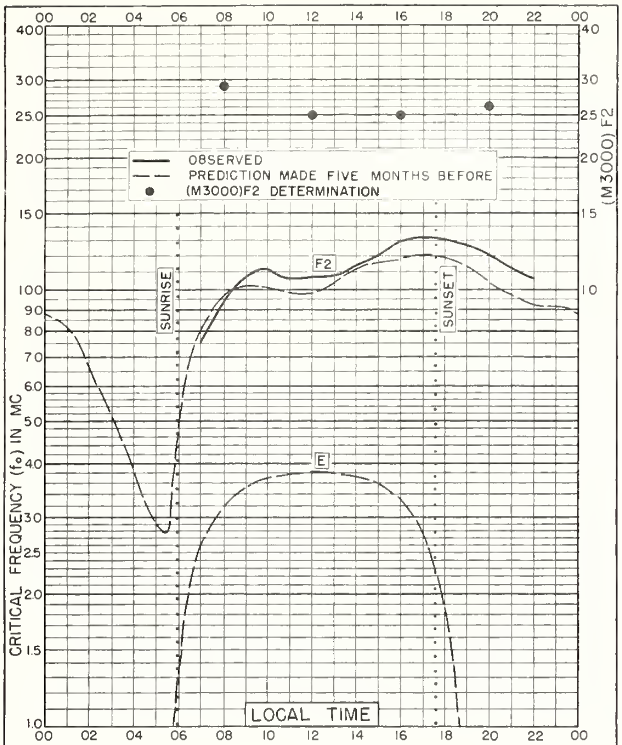


Fig. 105. MADRAS, INDIA
13.0°N, 80.2°E OCTOBER 1951

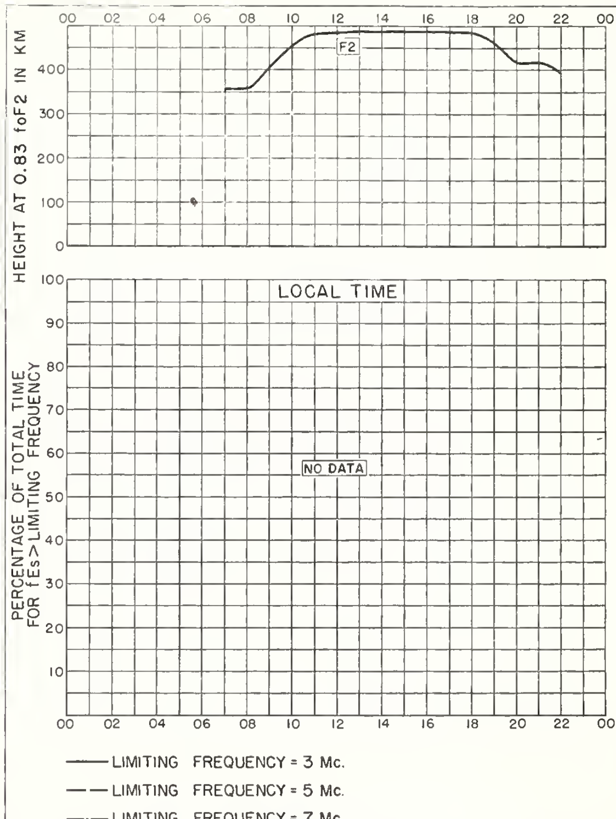


Fig. 106. MADRAS, INDIA OCTOBER 1951

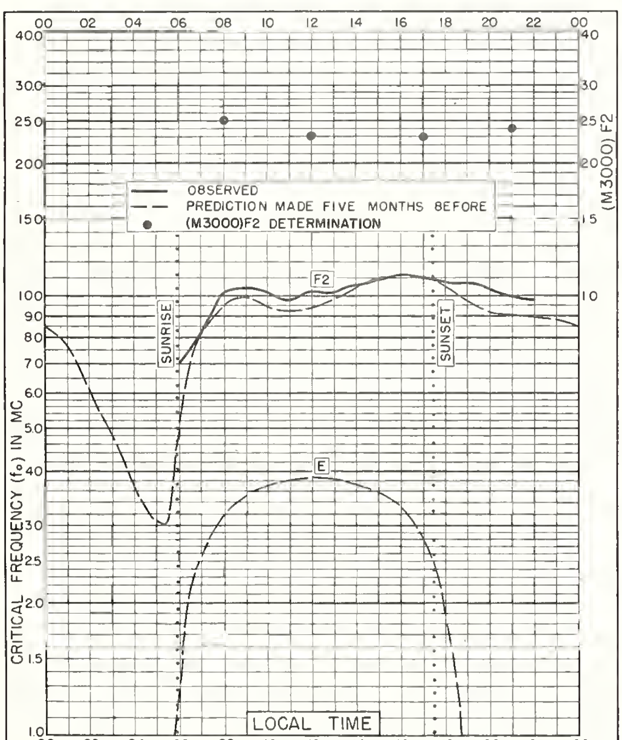


Fig. 107. TIRUCHY, INDIA
10.8°N, 78.8°E OCTOBER 1951

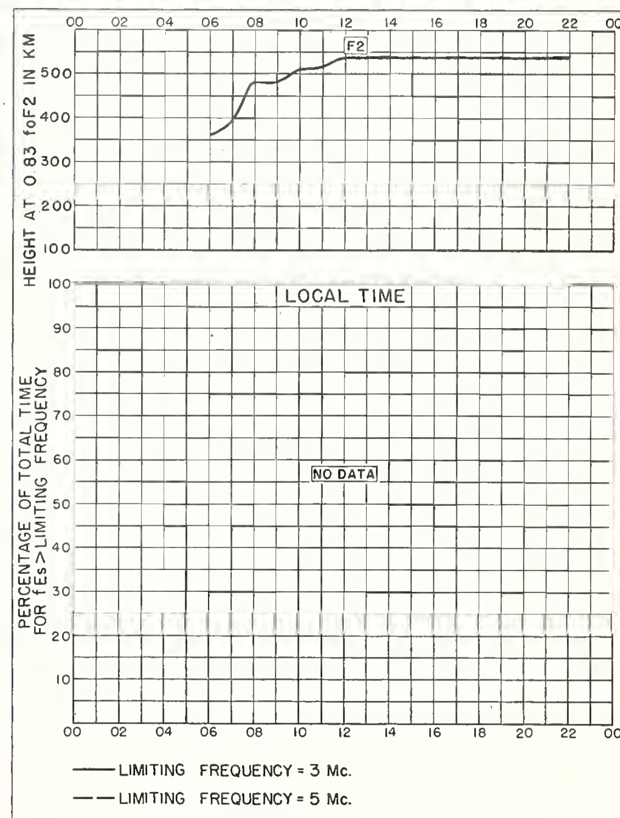


Fig. 108. TIRUCHY, INDIA OCTOBER 1951

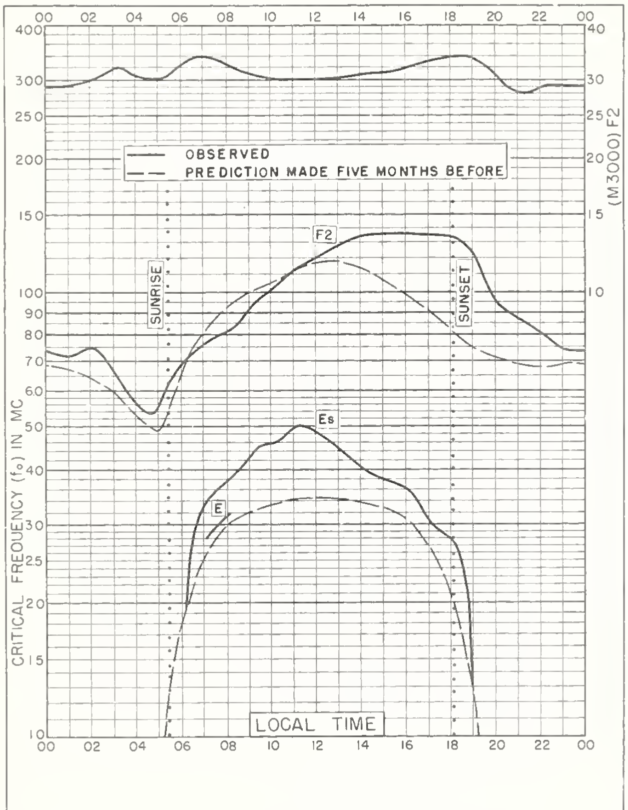


Fig. 109. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W OCTOBER 1951

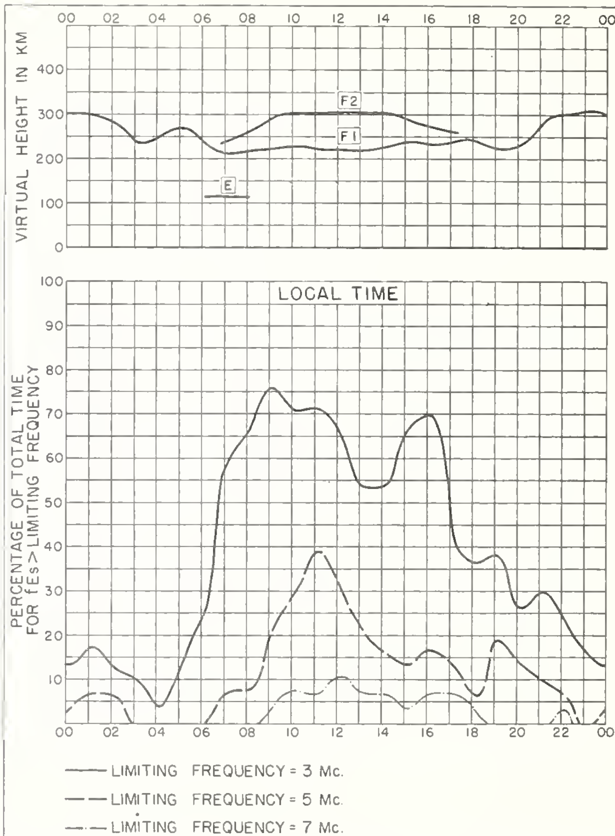


Fig. 110. BUENOS AIRES, ARGENTINA OCTOBER 1951

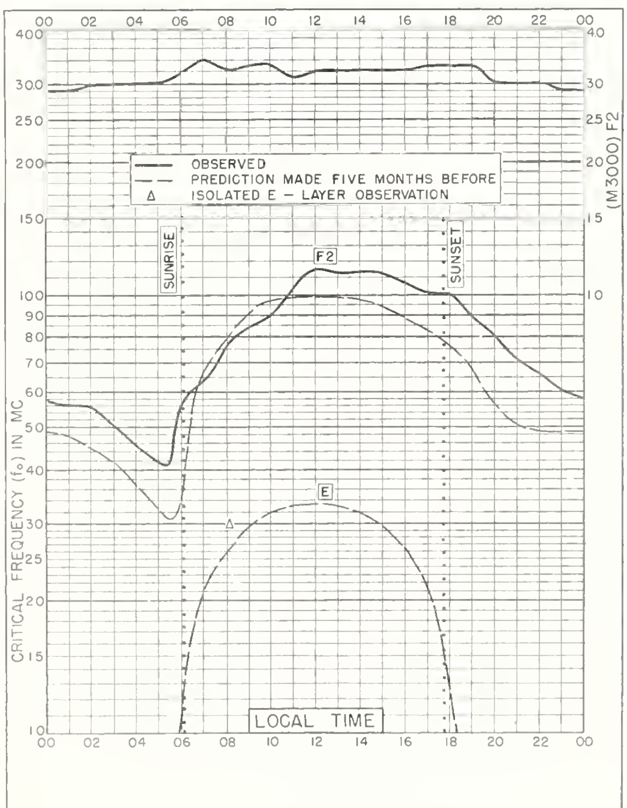


Fig. 111. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W SEPTEMBER 1951

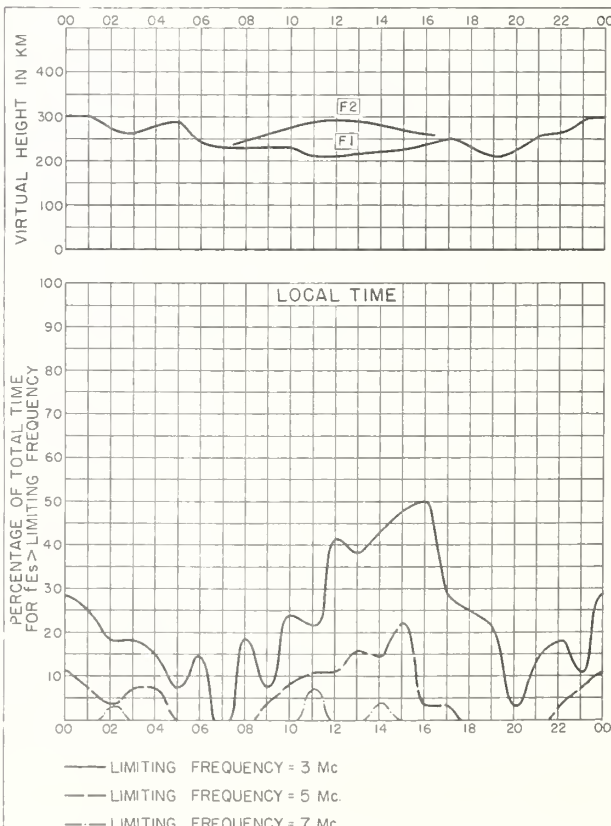


Fig. 112. BUENOS AIRES, ARGENTINA SEPTEMBER 1951

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[A list of CRPL Section Reports is available from the Central Radio Propagation Laboratory upon request]

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CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

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CRPL—F. Ionospheric Data.
*IRPL—A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.
*IRPL—H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

NBS Circular 462. Ionospheric Radio Propagation.
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:

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IRPL—G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
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- R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
- R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
- R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.
- **R11. A Nomographic Method for both Prediction and Observation Correlation of Ionosphere Characteristics.
- **R12. Short Time Variations in Ionospheric Characteristics.
- R14. A Graphical Method for Calculating Ground Reflection Coefficients.
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- **R17. Japanese Ionospheric Data—1943.
- R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
- **R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
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- **R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.
- **R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.
- **R26. The Ionosphere as a Measure of Solar Activity.
- R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.
- **R30. Disturbance Rating in Values of IRPL Quality-Figure Scale from A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.
- **R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.
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- **R34. The Interpretation of Recorded Values of *fEs*.
- **R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.

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